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## Coal Research Laboratories

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# DATA COMPILATION REPORT: ROADWAY HEIGHT MEASUREMENTS, 6 AND 7 WEST PANELS, LINGAN MINE, SYDNEY COALFIELD, N.S.

D.A. Young, G.R. Corbett and T.R.C. Aston

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by

D.A. Young*, G.R. Corbett* and T.R.C. Aston**

## ABSTRACT

The report represents a data base of roadway height measurements collected from the 6 and 7 West panels at Lingan Mine during 1987/1988. An analysis of the data is not undertaken.

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# RAPPORT DE COMPILATION DE DONNÉES : MESURES DE LA HAUTEUR DES VOIES, PANNEAUX 6 ET 7 OUEST, MINE LINGAN, CHAMP HOUILLER DE SYDNEY (N.-É.)

par

D.A. Young, G.R. Corbett et T.R.C. Aston

## RÉSUMÉ

Le présent constitue une base de données sur la hauteur des voies mesurée dans les panneaux 6 et 7 ouest, à la mine Lingan, en 1987-88. Aucune analyse des données n'a été entreprise.

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## INTRODUCTION

In 1983, an extensive roadway deformation survey program was undertaken by the Cape Breton Coal Research Laboratory (CBCRL) as part of an ongoing barrier pillar research program in the Sydney Coalfield, N.S. (1). The survey resulted in the collection of some 35 km of roadway deformation data (roadway height, width and cross-sectional area) from the Lingan and No. 26 Mines. This data base was subsequently analysed at McGill University via an EMR-RAP agreement (2).

Between September 1987 and June 1988, the gateroad deformation data base was extended by undertaking roadway height surveys along both the top and bottom levels of the 6 and 7 West panels at Lingan Mine, Figure 1. The purpose of this report is to present the collected data in a compiled format for easy reference and future analysis. An analysis of the data is not undertaken.

## DATA COLLECTION AND PROCESSING

The underground surveys consisted of taking measurements, using a metric tape, from the base of the rail to the arch crown, Figures 2 and 3. In the face end region, where the rails had not yet been laid, measurements were taken from the arch crown to the floor. However, care was taken to ensure that the floor was 'reasonably level' and not obviously covered with foreign material such as 'large' loose rocks, timbers, debris, etc. Measurements were taken at three-arch intervals (3) from the original face startline to the arch closest the 'brushing lip'.

Once collected, the data was transferred to an IBM compatible microcomputer using spreadsheet software. Graphs were then plotted showing both the height and % reduction in arch height along the roadway. Figures 4 to 7 show the 6 West panel data and Figures 8 to 11 the 7 West panel data.

The original field data (roadway or arch heights) along with the reduction in height and % reduction in height values is given in the following Appendices:

Appendix A - 6 West Bottom Level
Appendix B - 6 West Top Level
Appendix C - 7 West Top Level
Appendix D - 7 West Bottom Level

## DISCUSSION

Roadway height measurements (vertical distance between the arch crown and floor/track) are often referred to as 'roadway deformation' measurements. This terminology is not correct, since true roadway deformation measurements would require height, width and/or arch profile/cross-sectional area measurements at each of the intervals monitored. The roadway height measurements collected during this type of survey represent the 'roadway working height'. Normally, roadway deformation is inferred to mean the reduction in roadway height/profile due to strata movement. However, the 'working height' measurements are actually influenced by four main factors:

1) Roof strata displacement
2) Floor heave
3) Arch leg penetration into the floor
4) Waste rock/material not removed from the roadway floor

Experience indicates that the survey method, using experienced personnel, can give results with an accuracy of much better than ±5 cm, which with a 12 ft (3.65 m) arch is better than ±1%.

## CONCLUSION

A significant data base of roadway height and deformation data now exists regarding the advance longwall operations of the Sydney Coalfield, N.S. and in particular those at Lingan Mine. Subsequent analysis of this data with regard to such parameters as arch and pack type, geology and barrier pillar width will allow continued improvements to be made in the development and implimentation of future advance and dual-life roadway support techniques.

## ACKNOWLEDGEMENTS

The authors wish to acknowledge the contributions made by Mr. Bill Gallant and Mr. Shane O'Leary of CBCRL during the field data collection phase of this project.

## REFERENCES

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2. Hassani, F.P. and Majdi, A. "A study of tunnel stability and barrier pillar design in mines of the Cape Breton Coalfield"; EMR-RAP Project; Dept. Min. and Metall. Eng., McGill University, Montreal; August 1988.
3. Aston, T.R.C. "Mine roadway surveys - recommendations for an optimum survey interval"; Division Report CRL 88-72(TR); CANMET, Energy, Mines and Resources Canada.

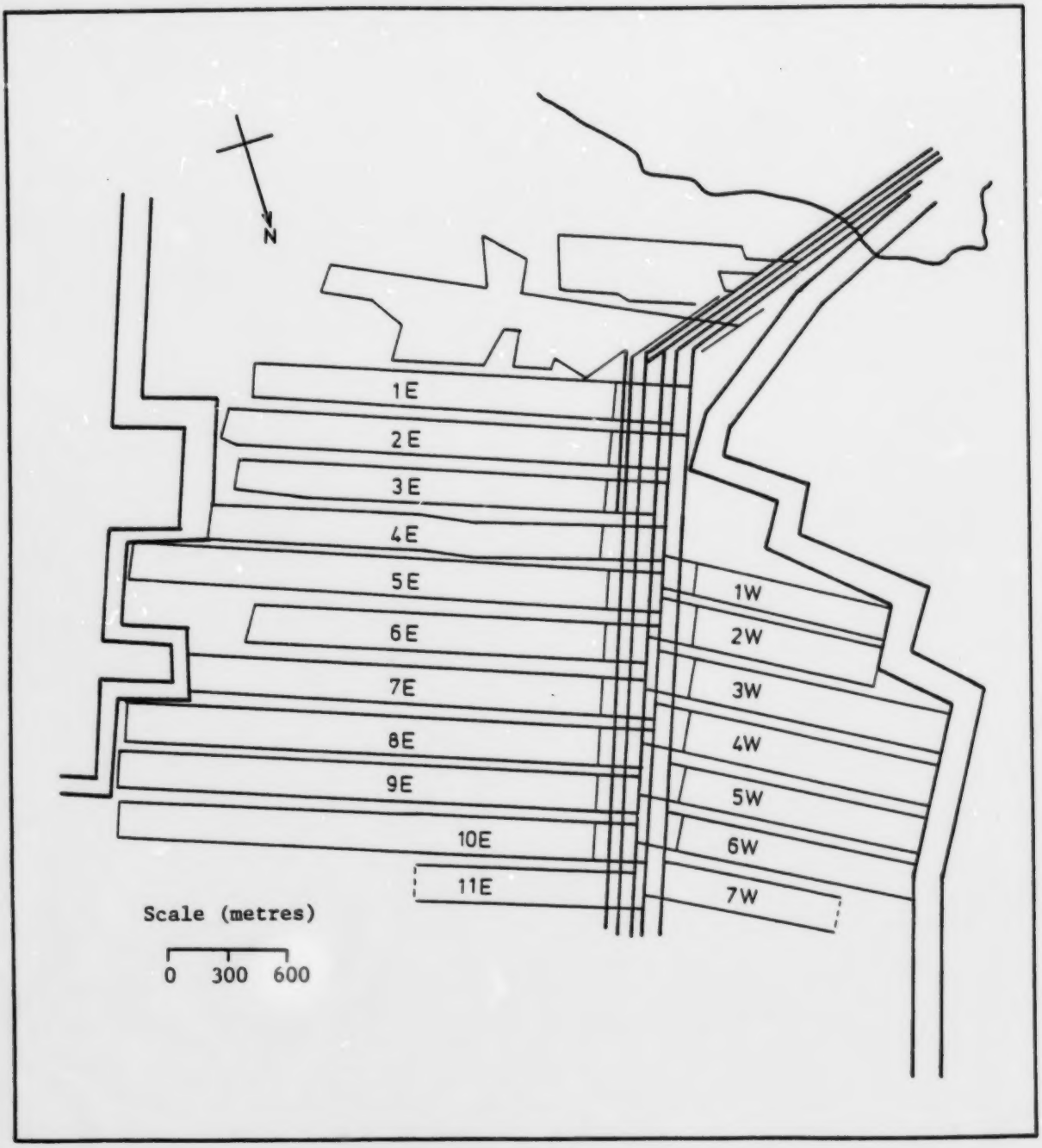


Figure 1 - Plan of Lingan Mine

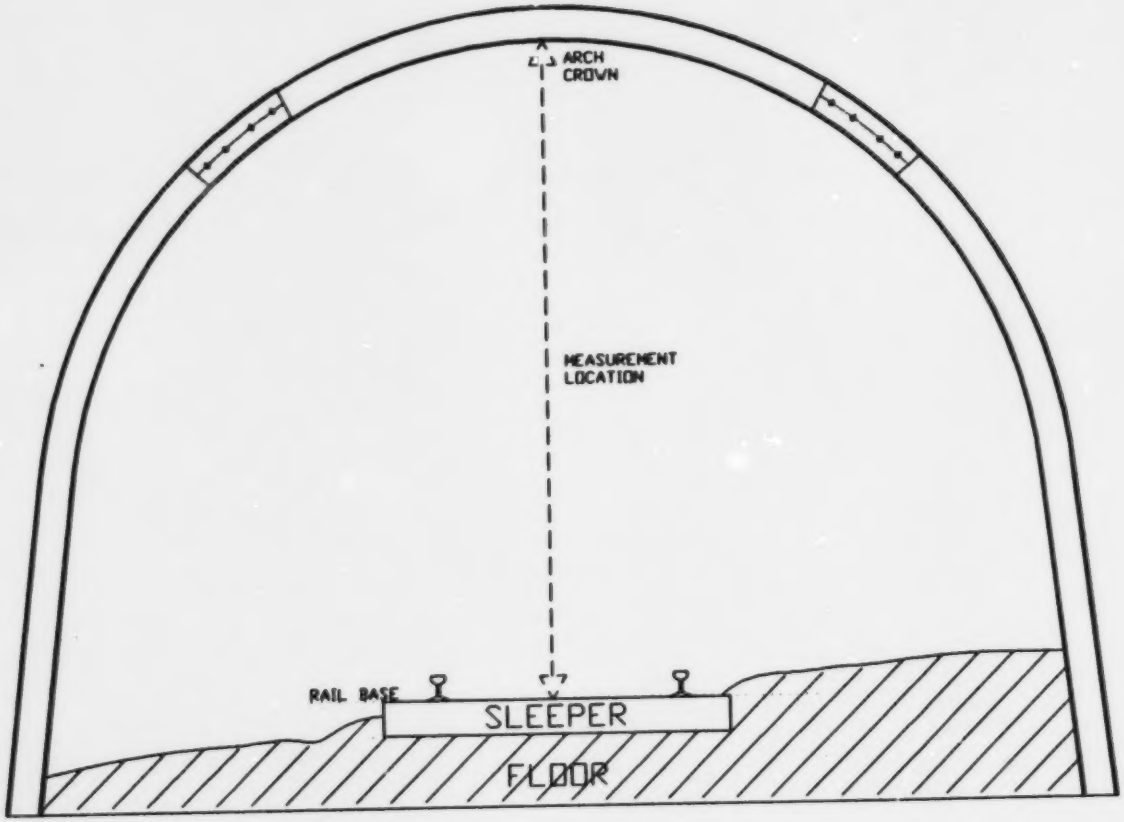


Figure 2 - Measurement location, typical mine arch

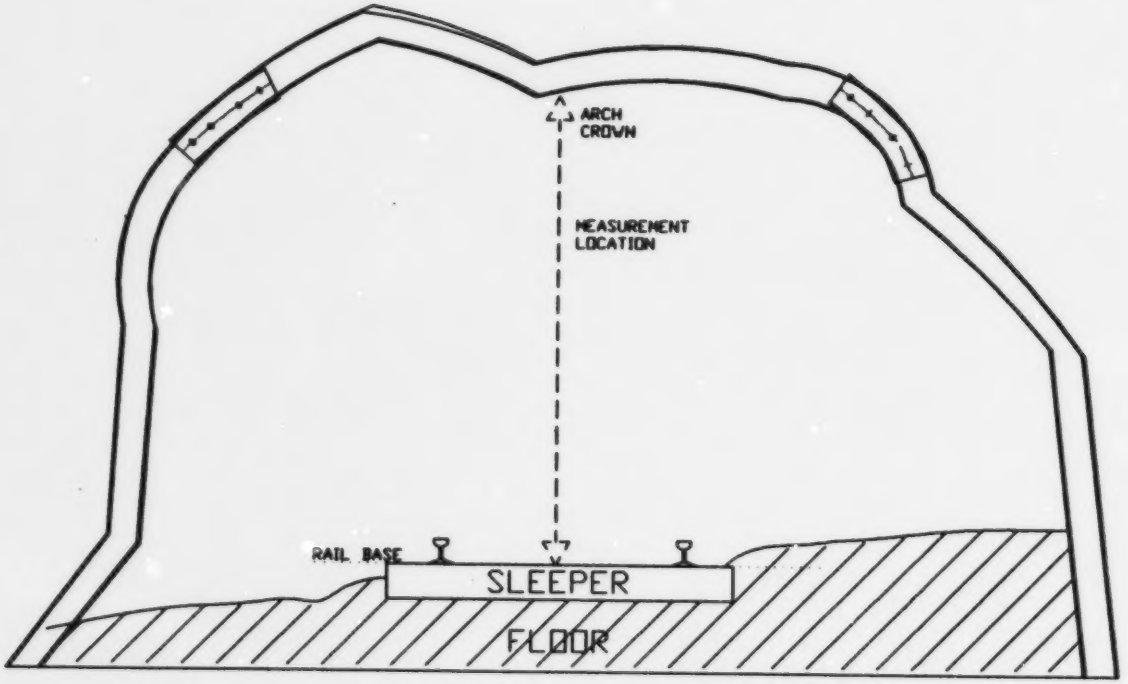


Figure 3 - Measurement location, deformed mine arch

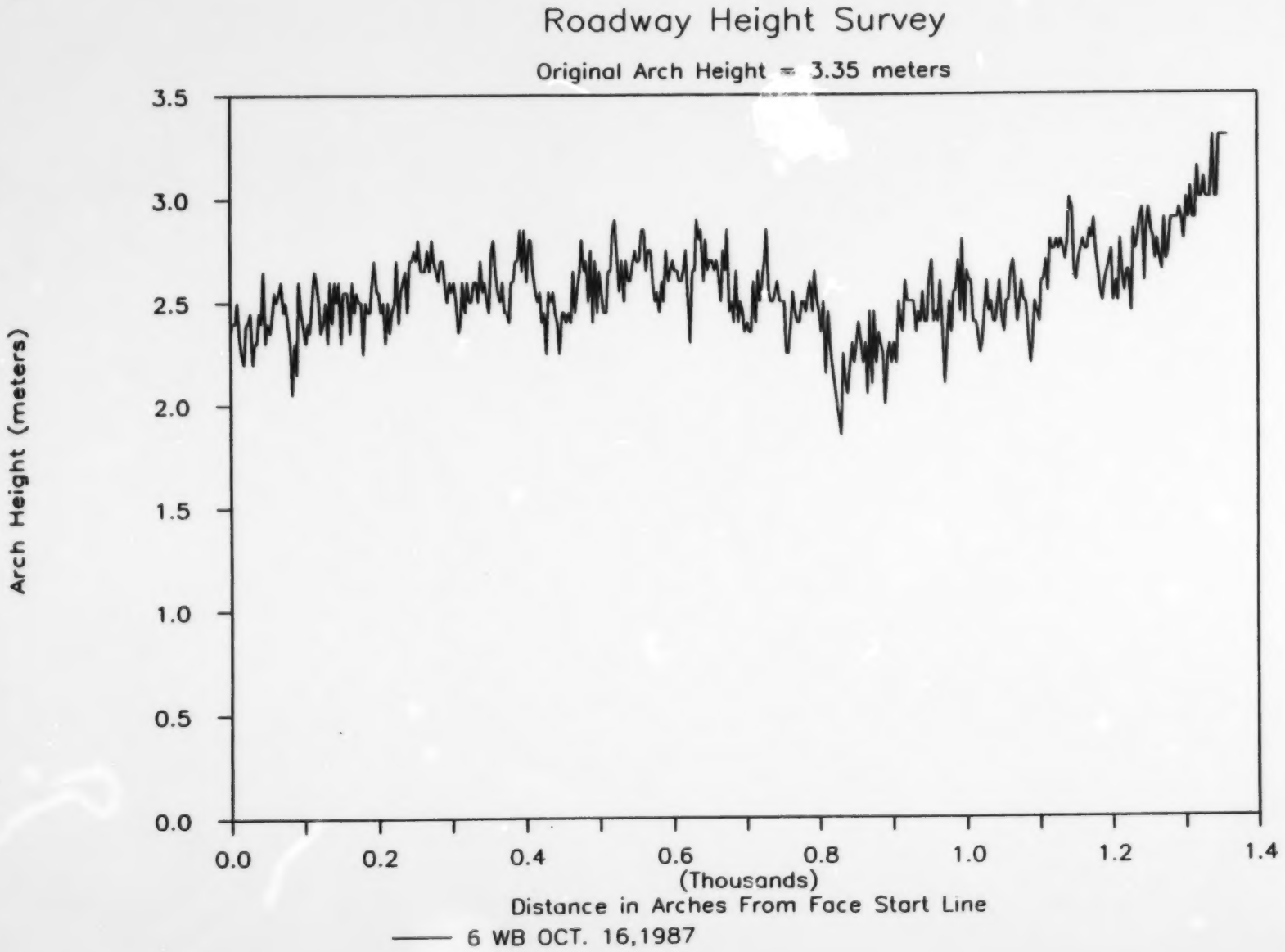


**Figure 4 - 6 West bottom arch height measurements**

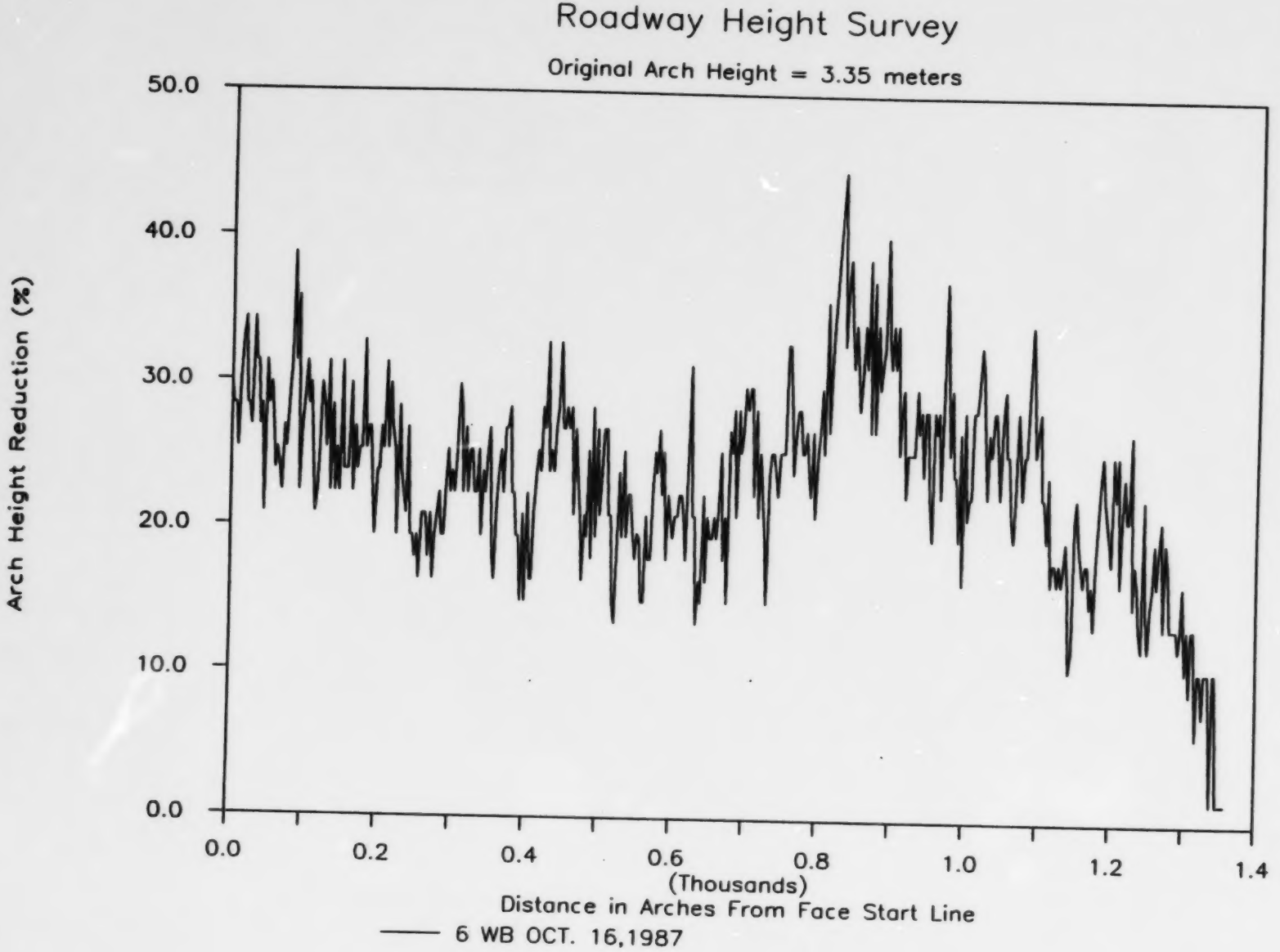


**Figure 5 - 6 West bottom % arch height reduction**

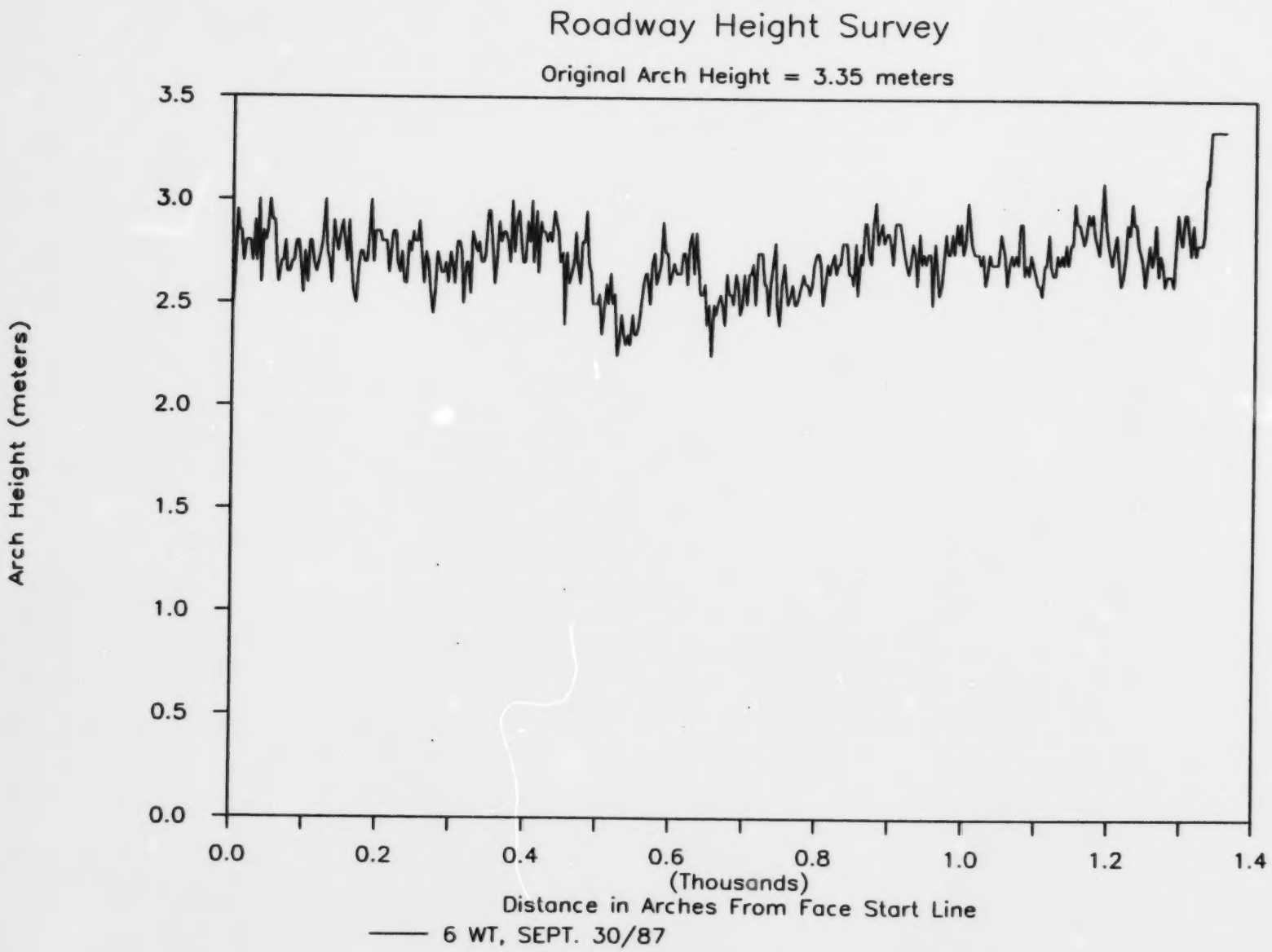


**Figure 6 - 6 West top arch height measurements**

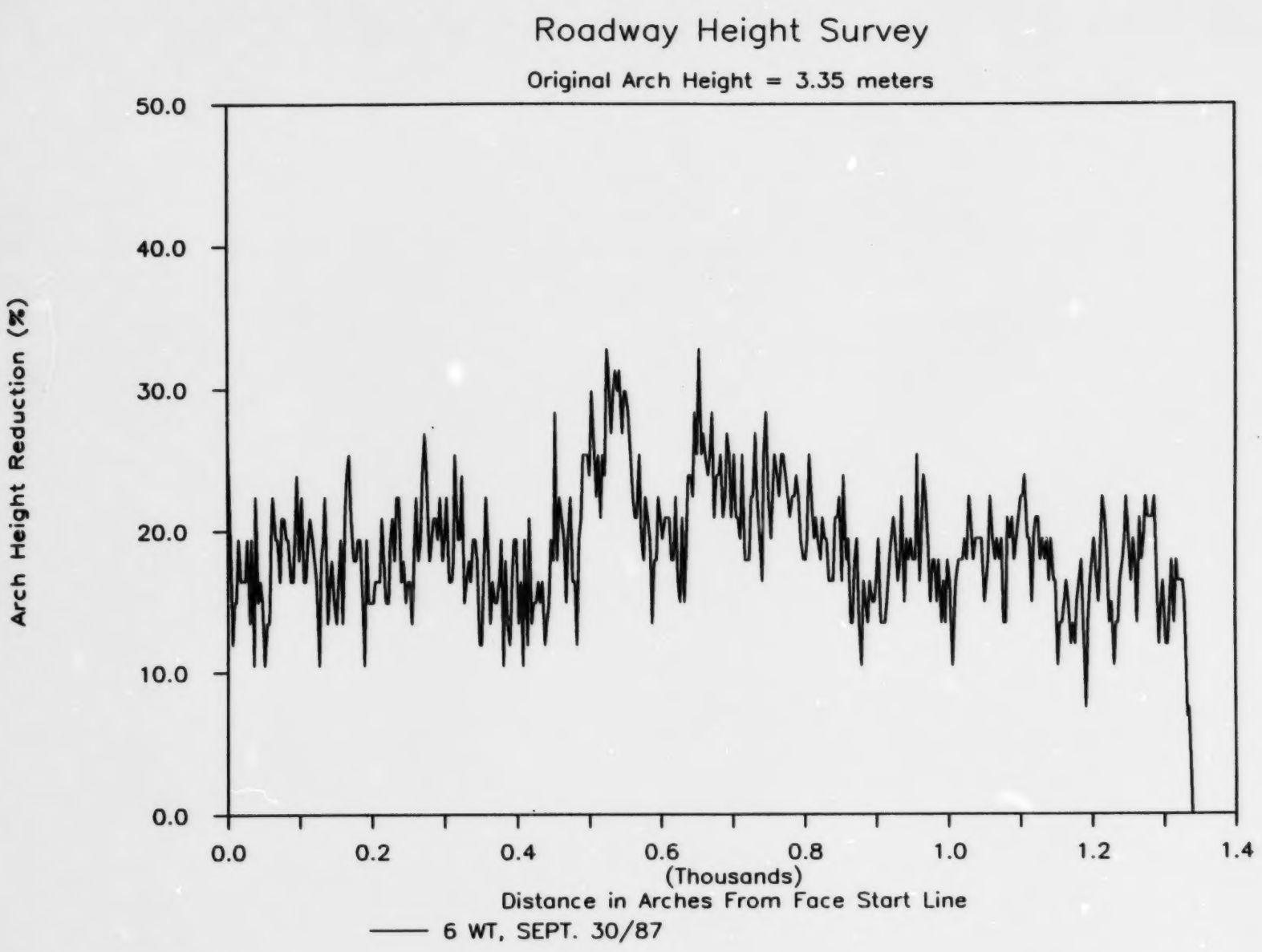


**Figure 7 - 6 West top % arch height reduction**

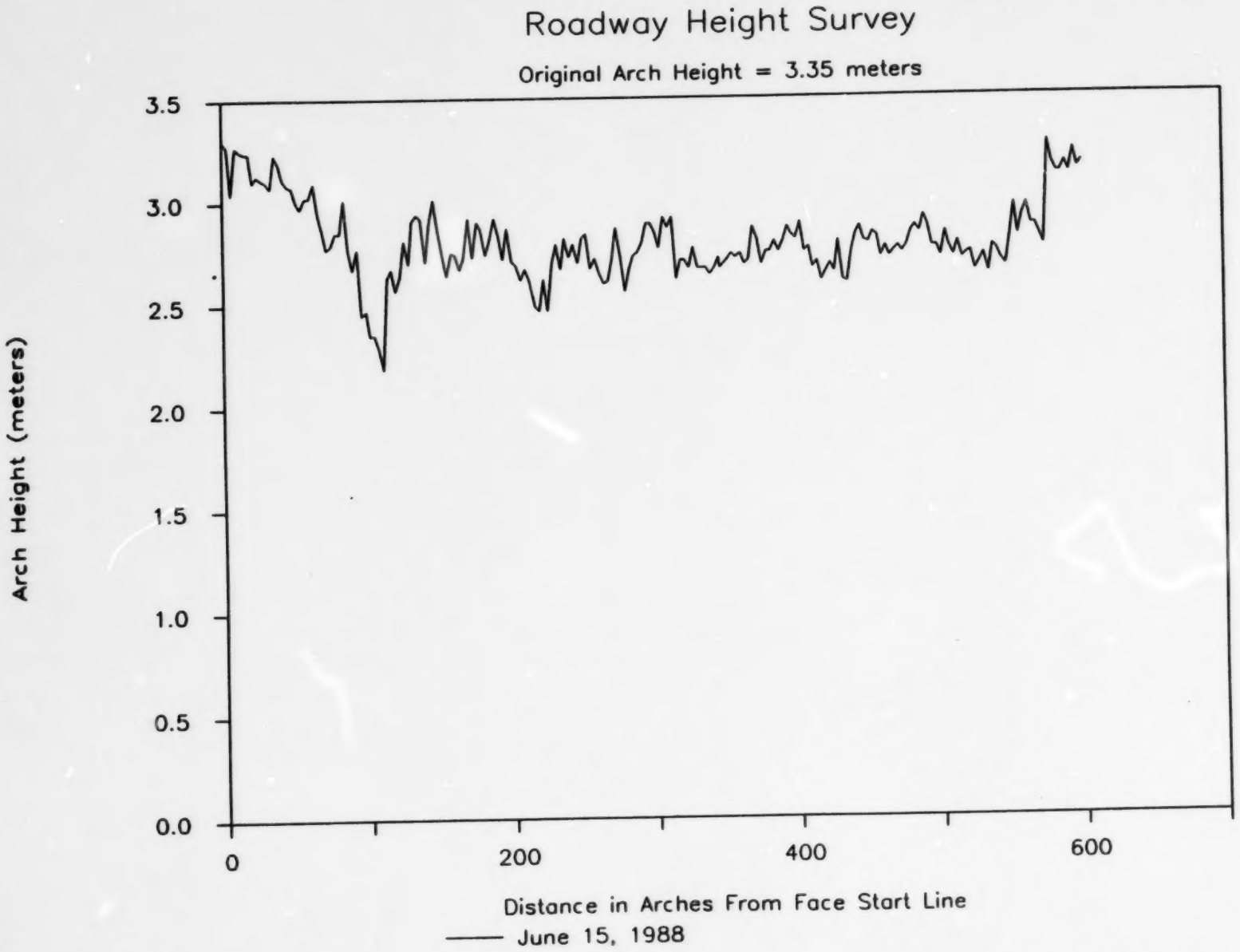


**Figure 8 - 7 West top arch height measurements**

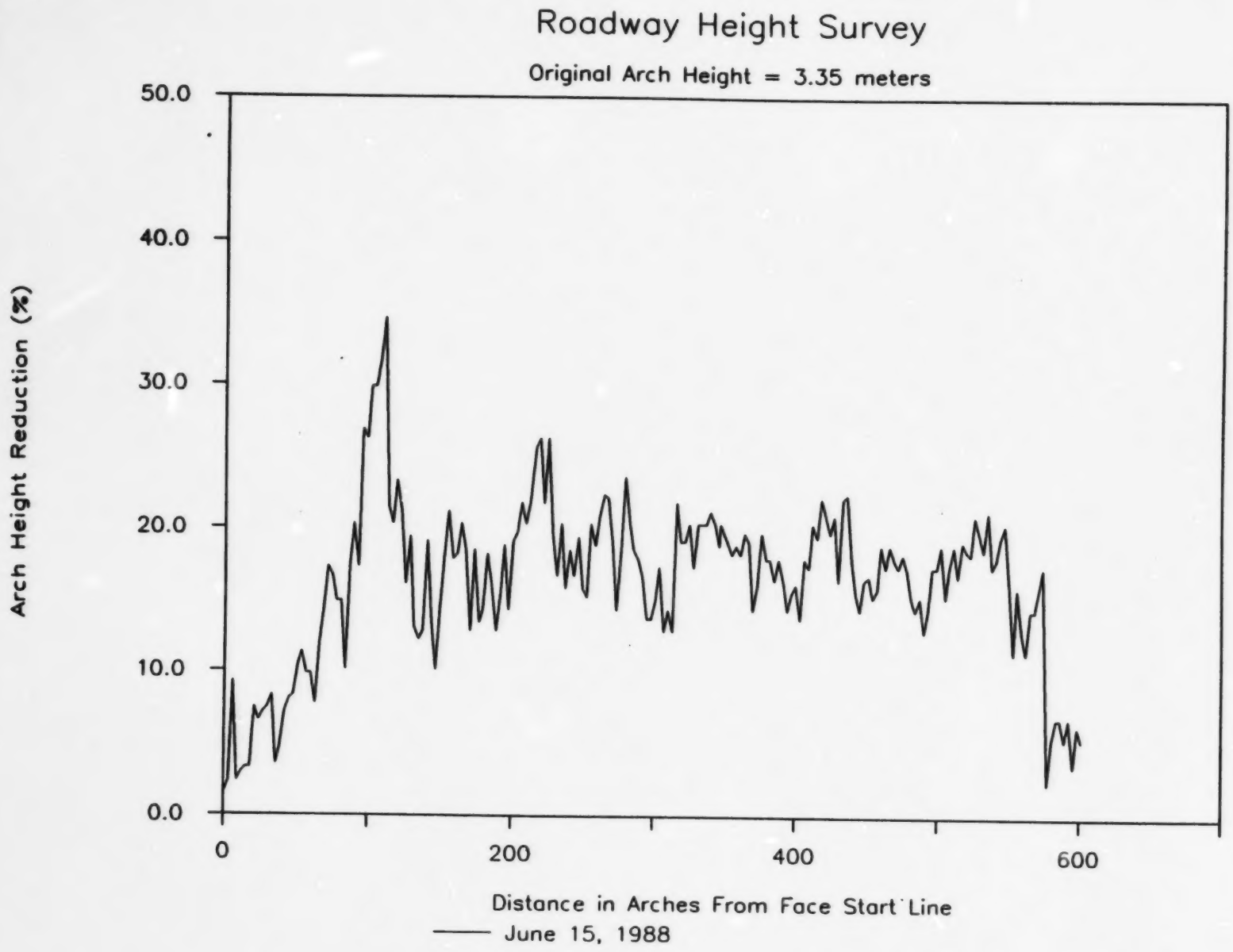


**Figure 9 - 7 West top % arch height reduction**

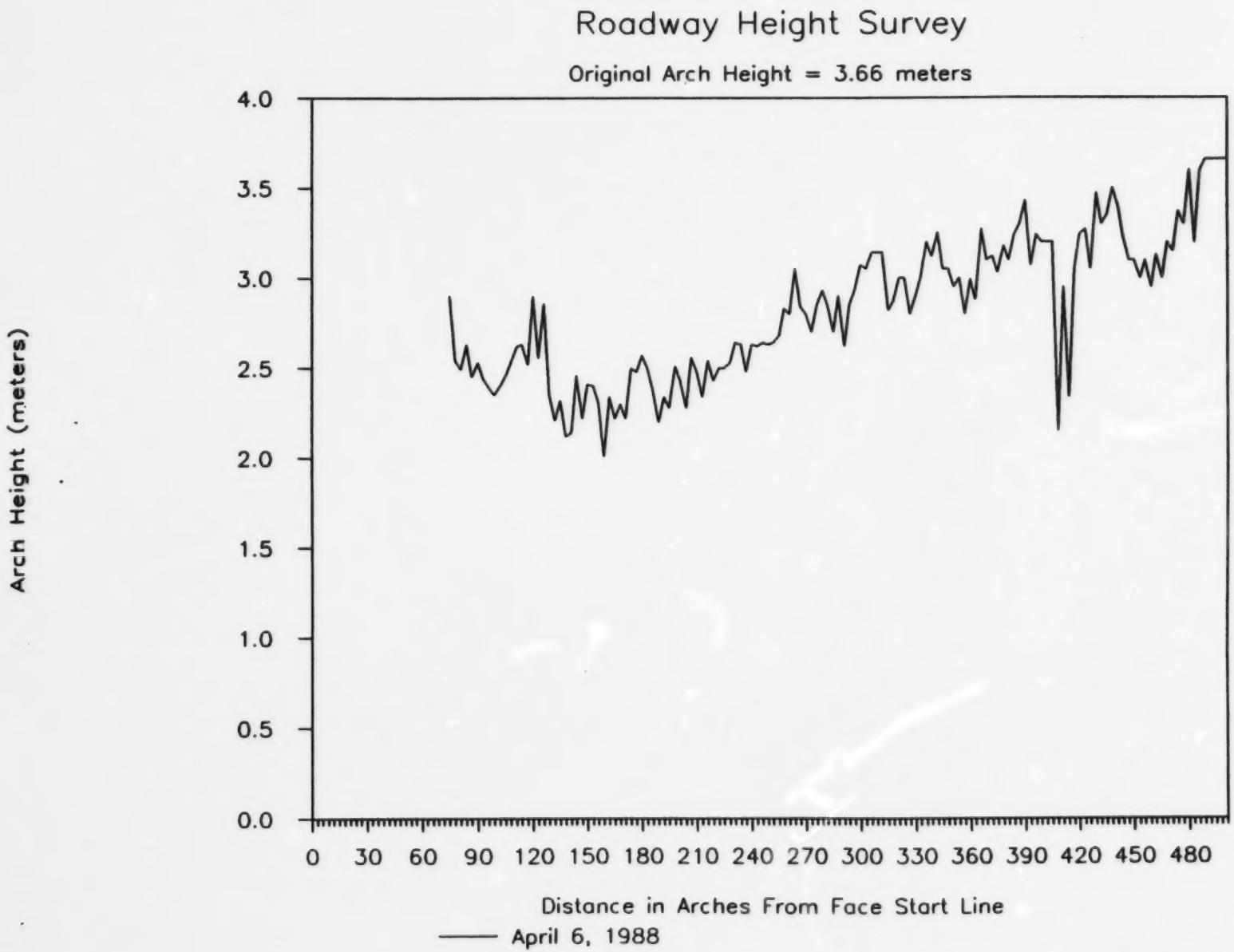


**Figure 10 - 7 West bottom arch height measurements**

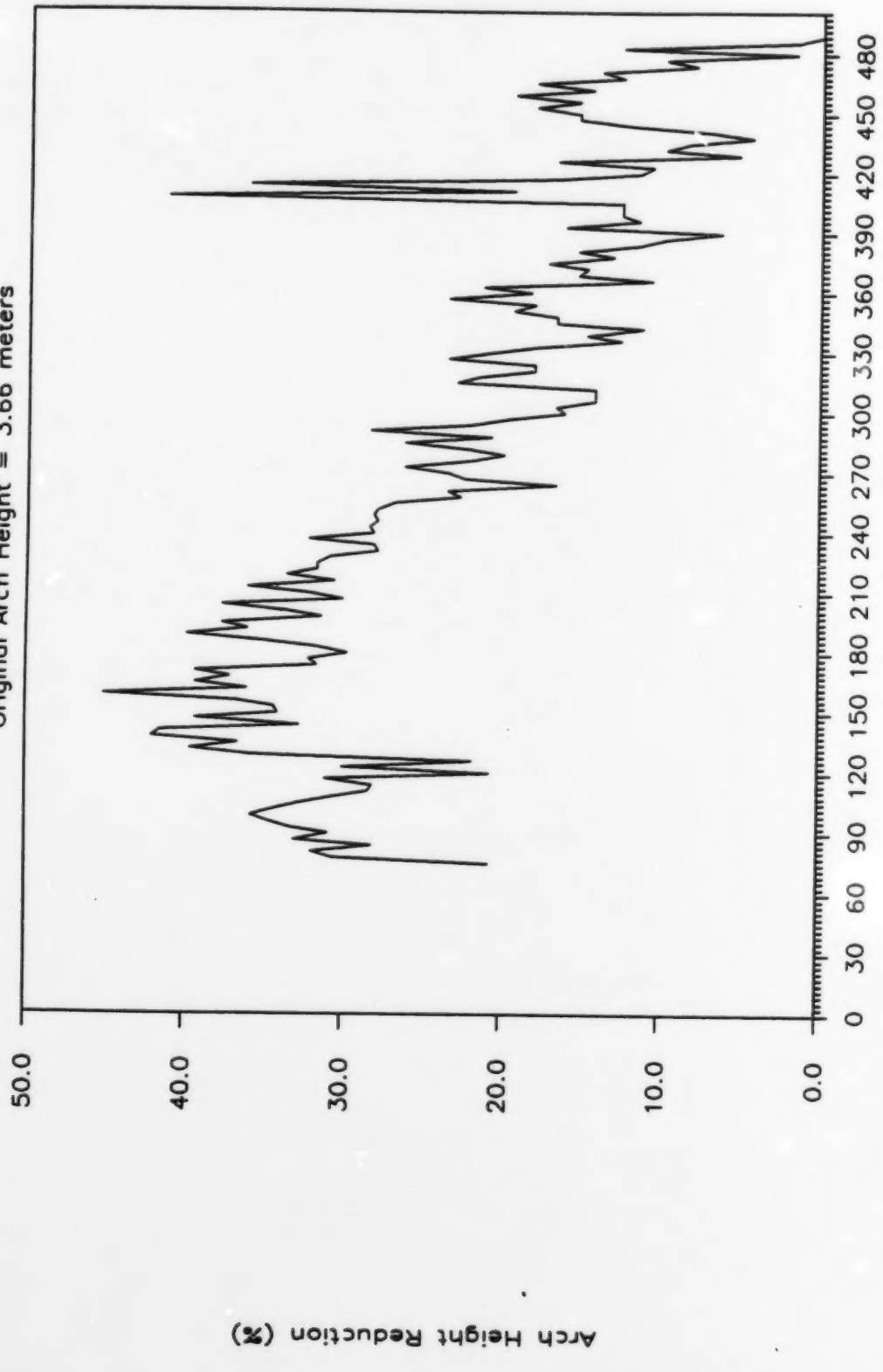


**Figure 11 - 7 West bottom % arch height reduction**

# APPENDIX A

## 6 West Bottom Level

LINGAN COLLIERY
ARCH SURVEY OF 6 WEST BOTTOM
OCTOBER 16,1987
ORIGINAL ARCH HEIGHT IS 3.35 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 2.35 | 1.00 | 29.9 | 453 | 2.45 | 0.90 | 26.9 | 915 | 2.35 | 1.00 | 29.9 |
| 3 | 2.40 | 0.95 | 28.4 | 456 | 2.40 | 0.95 | 28.4 | 918 | 2.60 | 0.75 | 22.4 |
| 6 | 2.40 | 0.95 | 28.4 | 459 | 2.45 | 0.90 | 26.9 | 921 | 2.50 | 0.85 | 25.4 |
| 9 | 2.50 | 0.85 | 25.4 | 462 | 2.40 | 0.95 | 28.4 | 924 | 2.50 | 0.85 | 25.4 |
| 12 | 2.35 | 1.00 | 29.9 | 465 | 2.65 | 0.70 | 20.9 | 927 | 2.50 | 0.85 | 25.4 |
| 15 | 2.25 | 1.10 | 32.8 | 468 | 2.45 | 0.90 | 26.9 | 930 | 2.50 | 0.85 | 25.4 |
| 18 | 2.20 | 1.15 | 34.3 | 471 | 2.55 | 0.80 | 23.9 | 933 | 2.35 | 1.00 | 29.9 |
| 21 | 2.40 | 0.95 | 28.4 | 474 | 2.65 | 0.70 | 20.9 | 936 | 2.45 | 0.90 | 26.9 |
| 24 | 2.40 | 0.95 | 28.4 | 477 | 2.80 | 0.55 | 16.4 | 939 | 2.40 | 0.95 | 28.4 |
| 27 | 2.45 | 0.90 | 26.9 | 480 | 2.65 | 0.70 | 20.9 | 942 | 2.55 | 0.80 | 23.9 |
| 30 | 2.20 | 1.15 | 34.3 | 483 | 2.70 | 0.65 | 19.4 | 945 | 2.40 | 0.95 | 28.4 |
| 33 | 2.30 | 1.05 | 31.3 | 486 | 2.50 | 0.85 | 25.4 | 948 | 2.40 | 0.95 | 28.4 |
| 36 | 2.30 | 1.05 | 31.3 | 489 | 2.75 | 0.60 | 17.9 | 951 | 2.60 | 0.75 | 22.4 |
| 39 | 2.45 | 0.90 | 26.9 | 492 | 2.40 | 0.95 | 28.4 | 954 | 2.70 | 0.65 | 19.4 |
| 42 | 2.40 | 0.95 | 28.4 | 495 | 2.70 | 0.65 | 19.4 | 957 | 2.40 | 0.95 | 28.4 |
| 45 | 2.65 | 0.70 | 20.9 | 498 | 2.45 | 0.90 | 26.9 | 960 | 2.45 | 0.90 | 26.9 |
| 48 | 2.30 | 1.05 | 31.3 | 501 | 2.65 | 0.70 | 20.9 | 963 | 2.40 | 0.95 | 28.4 |
| 51 | 2.40 | 0.95 | 28.4 | 504 | 2.55 | 0.80 | 23.9 | 966 | 2.60 | 0.75 | 22.4 |
| 54 | 2.35 | 1.00 | 29.9 | 507 | 2.45 | 0.90 | 26.9 | 969 | 2.35 | 1.00 | 29.9 |
| 57 | 2.45 | 0.90 | 26.9 | 510 | 2.45 | 0.90 | 26.9 | 972 | 2.10 | 1.25 | 37.3 |
| 60 | 2.55 | 0.80 | 23.9 | 513 | 2.65 | 0.70 | 20.9 | 975 | 2.30 | 1.05 | 31.3 |
| 63 | 2.50 | 0.85 | 25.4 | 516 | 2.65 | 0.70 | 20.9 | 978 | 2.50 | 0.85 | 25.4 |
| 66 | 2.55 | 0.80 | 23.9 | 519 | 2.85 | 0.50 | 14.9 | 981 | 2.35 | 1.00 | 29.9 |
| 69 | 2.60 | 0.75 | 22.4 | 522 | 2.90 | 0.45 | 13.4 | 984 | 2.55 | 0.80 | 23.9 |
| 72 | 2.45 | 0.90 | 26.9 | 525 | 2.70 | 0.65 | 19.4 | 987 | 2.55 | 0.80 | 23.9 |
| 75 | 2.50 | 0.85 | 25.4 | 528 | 2.55 | 0.80 | 23.9 | 990 | 2.70 | 0.65 | 19.4 |
| 78 | 2.40 | 0.95 | 28.4 | 531 | 2.70 | 0.65 | 19.4 | 993 | 2.45 | 0.90 | 26.9 |
| 81 | 2.30 | 1.05 | 31.3 | 534 | 2.50 | 0.85 | 25.4 | 996 | 2.80 | 0.55 | 16.4 |

LINGAN COLLIERY
ARCH SURVEY OF 6 WEST BOTTOM
OCTOBER 16,1987
ORIGINAL ARCH HEIGHT IS 3.35 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 84 | 2.05 | 1.30 | 38.8 | 537 | 2.70 | 0.65 | 19.4 | 999 | 2.40 | 0.95 | 28.4 |
| 87 | 2.30 | 1.05 | 31.3 | 540 | 2.60 | 0.75 | 22.4 | 1002 | 2.65 | 0.70 | 20.9 |
| 90 | 2.15 | 1.20 | 35.8 | 543 | 2.60 | 0.75 | 22.4 | 1005 | 2.60 | 0.75 | 22.4 |
| 93 | 2.60 | 0.75 | 22.4 | 546 | 2.70 | 0.65 | 19.4 | 1008 | 2.60 | 0.75 | 22.4 |
| 96 | 2.45 | 0.90 | 26.9 | 549 | 2.75 | 0.60 | 17.9 | 1011 | 2.40 | 0.95 | 28.4 |
| 99 | 2.40 | 0.95 | 28.4 | 552 | 2.69 | 0.66 | 19.7 | 1014 | 2.40 | 0.95 | 28.4 |
| 102 | 2.30 | 1.05 | 31.3 | 555 | 2.70 | 0.65 | 19.4 | 1017 | 2.35 | 1.00 | 29.9 |
| 105 | 2.40 | 0.95 | 28.4 | 558 | 2.85 | 0.50 | 14.9 | 1020 | 2.25 | 1.10 | 32.8 |
| 108 | 2.35 | 1.00 | 29.9 | 561 | 2.85 | 0.50 | 14.9 | 1023 | 2.30 | 1.05 | 31.3 |
| 111 | 2.50 | 0.85 | 25.4 | 564 | 2.65 | 0.70 | 20.9 | 1026 | 2.45 | 0.90 | 26.9 |
| 114 | 2.65 | 0.70 | 20.9 | 567 | 2.75 | 0.60 | 17.9 | 1029 | 2.60 | 0.75 | 22.4 |
| 117 | 2.60 | 0.75 | 22.4 | 570 | 2.75 | 0.60 | 17.9 | 1032 | 2.45 | 0.90 | 26.9 |
| 120 | 2.50 | 0.85 | 25.4 | 573 | 2.60 | 0.75 | 22.4 | 1035 | 2.50 | 0.85 | 25.4 |
| 123 | 2.35 | 1.00 | 29.9 | 576 | 2.50 | 0.85 | 25.4 | 1038 | 2.40 | 0.95 | 28.4 |
| 126 | 2.40 | 0.95 | 28.4 | 579 | 2.55 | 0.80 | 23.9 | 1041 | 2.40 | 0.95 | 28.4 |
| 129 | 2.50 | 0.85 | 25.4 | 582 | 2.45 | 0.90 | 26.9 | 1044 | 2.50 | 0.85 | 25.4 |
| 132 | 2.30 | 1.05 | 31.3 | 585 | 2.60 | 0.75 | 22.4 | 1047 | 2.60 | 0.75 | 22.4 |
| 135 | 2.60 | 0.75 | 22.4 | 588 | 2.50 | 0.85 | 25.4 | 1050 | 2.40 | 0.95 | 28.4 |
| 138 | 2.40 | 0.95 | 28.4 | 591 | 2.75 | 0.60 | 17.9 | 1053 | 2.35 | 1.00 | 29.9 |
| 141 | 2.60 | 0.75 | 22.4 | 594 | 2.60 | 0.75 | 22.4 | 1056 | 2.50 | 0.85 | 25.4 |
| 144 | 2.50 | 0.85 | 25.4 | 597 | 2.65 | 0.70 | 20.9 | 1059 | 2.50 | 0.85 | 25.4 |
| 147 | 2.60 | 0.75 | 22.4 | 600 | 2.70 | 0.65 | 19.4 | 1062 | 2.65 | 0.70 | 20.9 |
| 150 | 2.30 | 1.05 | 31.3 | 603 | 2.65 | 0.70 | 20.9 | 1065 | 2.70 | 0.65 | 19.4 |
| 153 | 2.55 | 0.80 | 23.9 | 606 | 2.65 | 0.70 | 20.9 | 1068 | 2.60 | 0.75 | 22.4 |
| 156 | 2.55 | 0.80 | 23.9 | 609 | 2.60 | 0.75 | 22.4 | 1071 | 2.40 | 0.95 | 28.4 |
| 159 | 2.55 | 0.80 | 23.9 | 612 | 2.60 | 0.75 | 22.4 | 1074 | 2.50 | 0.85 | 25.4 |
| 162 | 2.35 | 1.00 | 29.9 | 615 | 2.65 | 0.70 | 20.9 | 1077 | 2.60 | 0.75 | 22.4 |
| 165 | 2.60 | 0.75 | 22.4 | 618 | 2.75 | 0.60 | 17.9 | 1080 | 2.50 | 0.85 | 25.4 |

LINGAN COLLIERY
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|---|---|---|---|---|---|---|---|---|---|---|---|
| 168 | 2.45 | 0.90 | 26.9 | 621 | 2.50 | 0.85 | 25.4 | 1083 | 2.50 | 0.85 | 25.4 |
| 171 | 2.55 | 0.80 | 23.9 | 624 | 2.30 | 1.05 | 31.3 | 1086 | 2.35 | 1.00 | 29.9 |
| 174 | 2.50 | 0.85 | 25.4 | 627 | 2.65 | 0.70 | 20.9 | 1089 | 2.20 | 1.15 | 34.3 |
| 177 | 2.50 | 0.85 | 25.4 | 630 | 2.65 | 0.70 | 20.9 | 1092 | 2.30 | 1.05 | 31.3 |
| 180 | 2.25 | 1.10 | 32.8 | 633 | 2.90 | 0.45 | 13.4 | 1095 | 2.50 | 0.85 | 25.4 |
| 183 | 2.50 | 0.85 | 25.4 | 636 | 2.80 | 0.55 | 16.4 | 1098 | 2.45 | 0.90 | 26.9 |
| 186 | 2.45 | 0.90 | 26.9 | 639 | 2.85 | 0.50 | 14.9 | 1101 | 2.40 | 0.95 | 28.4 |
| 189 | 2.45 | 0.90 | 26.9 | 642 | 2.60 | 0.75 | 22.4 | 1104 | 2.60 | 0.75 | 22.4 |
| 192 | 2.60 | 0.75 | 22.4 | 645 | 2.80 | 0.55 | 16.4 | 1107 | 2.60 | 0.75 | 22.4 |
| 195 | 2.70 | 0.65 | 19.4 | 648 | 2.65 | 0.70 | 20.9 | 1110 | 2.70 | 0.65 | 19.4 |
| 198 | 2.55 | 0.80 | 23.9 | 651 | 2.70 | 0.65 | 19.4 | 1113 | 2.55 | 0.80 | 23.9 |
| 201 | 2.55 | 0.80 | 23.9 | 654 | 2.70 | 0.65 | 19.4 | 1116 | 2.80 | 0.55 | 16.4 |
| 204 | 2.45 | 0.90 | 26.9 | 657 | 2.65 | 0.70 | 20.9 | 1119 | 2.75 | 0.60 | 17.9 |
| 207 | 2.50 | 0.85 | 25.4 | 660 | 2.70 | 0.65 | 19.4 | 1122 | 2.75 | 0.60 | 17.9 |
| 210 | 2.30 | 1.05 | 31.3 | 663 | 2.65 | 0.70 | 20.9 | 1125 | 2.80 | 0.55 | 16.4 |
| 213 | 2.50 | 0.85 | 25.4 | 666 | 2.50 | 0.85 | 25.4 | 1128 | 2.75 | 0.60 | 17.9 |
| 216 | 2.35 | 1.00 | 29.9 | 669 | 2.75 | 0.60 | 17.9 | 1131 | 2.80 | 0.55 | 16.4 |
| 219 | 2.45 | 0.90 | 26.9 | 672 | 2.65 | 0.70 | 20.9 | 1134 | 2.75 | 0.60 | 17.9 |
| 222 | 2.50 | 0.85 | 25.4 | 675 | 2.85 | 0.50 | 14.9 | 1137 | 2.70 | 0.65 | 19.4 |
| 225 | 2.70 | 0.65 | 19.4 | 678 | 2.45 | 0.90 | 26.9 | 1140 | 2.80 | 0.55 | 16.4 |
| 228 | 2.40 | 0.95 | 28.4 | 681 | 2.50 | 0.85 | 25.4 | 1143 | 3.00 | 0.35 | 10.4 |
| 231 | 2.55 | 0.80 | 23.9 | 684 | 2.40 | 0.95 | 28.4 | 1146 | 2.95 | 0.40 | 11.9 |
| 234 | 2.60 | 0.75 | 22.4 | 687 | 2.65 | 0.70 | 20.9 | 1149 | 2.65 | 0.70 | 20.9 |
| 237 | 2.65 | 0.70 | 20.9 | 690 | 2.40 | 0.95 | 28.4 | 1152 | 2.60 | 0.75 | 22.4 |
| 240 | 2.45 | 0.90 | 26.9 | 693 | 2.50 | 0.85 | 25.4 | 1155 | 2.70 | 0.65 | 19.4 |
| 243 | 2.70 | 0.65 | 19.4 | 696 | 2.45 | 0.90 | 26.9 | 1158 | 2.75 | 0.60 | 17.9 |
| 246 | 2.70 | 0.65 | 19.4 | 699 | 2.35 | 1.00 | 29.9 | 1161 | 2.80 | 0.55 | 16.4 |
| 249 | 2.75 | 0.60 | 17.9 | 702 | 2.40 | 0.95 | 28.4 | 1164 | 2.75 | 0.60 | 17.9 |

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OCTOBER 16,1987
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|---|---|---|---|---|---|---|---|---|---|---|---|
| 252 | 2.70 | 0.65 | 19.4 | 705 | 2.35 | 1.00 | 29.9 | 1167 | 2.75 | 0.60 | 17.9 |
| 255 | 2.80 | 0.55 | 16.4 | 708 | 2.35 | 1.00 | 29.9 | 1170 | 2.85 | 0.50 | 14.9 |
| 258 | 2.65 | 0.70 | 20.9 | 711 | 2.60 | 0.75 | 22.4 | 1173 | 2.80 | 0.55 | 16.4 |
| 261 | 2.65 | 0.70 | 20.9 | 714 | 2.40 | 0.95 | 28.4 | 1176 | 2.90 | 0.45 | 13.4 |
| 264 | 2.65 | 0.70 | 20.9 | 717 | 2.65 | 0.70 | 20.9 | 1179 | 2.75 | 0.60 | 17.9 |
| 267 | 2.75 | 0.60 | 17.9 | 720 | 2.50 | 0.85 | 25.4 | 1182 | 2.65 | 0.70 | 20.9 |
| 270 | 2.65 | 0.70 | 20.9 | 723 | 2.60 | 0.75 | 22.4 | 1185 | 2.55 | 0.80 | 23.9 |
| 273 | 2.80 | 0.55 | 16.4 | 726 | 2.70 | 0.65 | 19.4 | 1188 | 2.50 | 0.85 | 25.4 |
| 276 | 2.70 | 0.65 | 19.4 | 729 | 2.85 | 0.50 | 14.9 | 1191 | 2.60 | 0.75 | 22.4 |
| 279 | 2.65 | 0.70 | 20.9 | 732 | 2.55 | 0.80 | 23.9 | 1194 | 2.65 | 0.70 | 20.9 |
| 282 | 2.60 | 0.75 | 22.4 | 735 | 2.50 | 0.85 | 25.4 | 1197 | 2.70 | 0.65 | 19.4 |
| 285 | 2.70 | 0.65 | 19.4 | 738 | 2.50 | 0.85 | 25.4 | 1200 | 2.75 | 0.60 | 17.9 |
| 288 | 2.70 | 0.65 | 19.4 | 741 | 2.55 | 0.80 | 23.9 | 1203 | 2.50 | 0.85 | 25.4 |
| 291 | 2.60 | 0.75 | 22.4 | 744 | 2.60 | 0.75 | 22.4 | 1206 | 2.60 | 0.75 | 22.4 |
| 294 | 2.50 | 0.85 | 25.4 | 747 | 2.50 | 0.85 | 25.4 | 1209 | 2.50 | 0.85 | 25.4 |
| 297 | 2.60 | 0.75 | 22.4 | 750 | 2.50 | 0.85 | 25.4 | 1212 | 2.80 | 0.55 | 16.4 |
| 300 | 2.55 | 0.80 | 23.9 | 753 | 2.50 | 0.85 | 25.4 | 1215 | 2.65 | 0.70 | 20.9 |
| 303 | 2.60 | 0.75 | 22.4 | 756 | 2.25 | 1.10 | 32.8 | 1218 | 2.55 | 0.80 | 23.9 |
| 306 | 2.50 | 0.85 | 25.4 | 759 | 2.25 | 1.10 | 32.8 | 1221 | 2.65 | 0.70 | 20.9 |
| 309 | 2.35 | 1.00 | 29.9 | 762 | 2.40 | 0.95 | 28.4 | 1224 | 2.65 | 0.70 | 20.9 |
| 312 | 2.40 | 0.95 | 28.4 | 765 | 2.55 | 0.80 | 23.9 | 1227 | 2.45 | 0.90 | 26.9 |
| 315 | 2.60 | 0.75 | 22.4 | 768 | 2.45 | 0.90 | 26.9 | 1230 | 2.85 | 0.50 | 14.9 |
| 318 | 2.45 | 0.90 | 26.9 | 771 | 2.40 | 0.95 | 28.4 | 1233 | 2.75 | 0.60 | 17.9 |
| 321 | 2.60 | 0.75 | 22.4 | 774 | 2.40 | 0.95 | 28.4 | 1236 | 2.80 | 0.55 | 16.4 |
| 324 | 2.50 | 0.85 | 25.4 | 777 | 2.50 | 0.85 | 25.4 | 1239 | 2.90 | 0.45 | 13.4 |
| 327 | 2.50 | 0.85 | 25.4 | 780 | 2.50 | 0.85 | 25.4 | 1242 | 2.95 | 0.40 | 11.9 |
| 330 | 2.60 | 0.75 | 22.4 | 783 | 2.45 | 0.90 | 26.9 | 1245 | 2.60 | 0.75 | 22.4 |
| 333 | 2.60 | 0.75 | 22.4 | 786 | 2.55 | 0.80 | 23.9 | 1248 | 2.85 | 0.50 | 14.9 |

LINGAN COLLIERY
ARCH SURVEY OF 6 WEST BOTTOM
OCTOBER 16,1987
ORIGINAL ARCH HEIGHT IS 3.35 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 336 | 2.50 | 0.85 | 25.4 | 789 | 2.60 | 0.75 | 22.4 | 1251 | 2.95 | 0.40 | 11.9 |
| 339 | 2.70 | 0.65 | 19.4 | 792 | 2.45 | 0.90 | 26.9 | 1254 | 2.85 | 0.50 | 14.9 |
| 342 | 2.55 | 0.80 | 23.9 | 795 | 2.65 | 0.70 | 20.9 | 1257 | 2.80 | 0.55 | 16.4 |
| 345 | 2.60 | 0.75 | 22.4 | 798 | 2.50 | 0.85 | 25.4 | 1260 | 2.70 | 0.65 | 19.4 |
| 348 | 2.50 | 0.85 | 25.4 | 801 | 2.45 | 0.90 | 26.9 | 1263 | 2.80 | 0.55 | 16.4 |
| 351 | 2.45 | 0.90 | 26.9 | 804 | 2.35 | 1.00 | 29.9 | 1266 | 2.70 | 0.65 | 19.4 |
| 354 | 2.75 | 0.60 | 17.9 | 807 | 2.50 | 0.85 | 25.4 | 1269 | 2.65 | 0.70 | 20.9 |
| 357 | 2.80 | 0.55 | 16.4 | 810 | 2.15 | 1.20 | 35.8 | 1272 | 2.90 | 0.45 | 13.4 |
| 360 | 2.65 | 0.70 | 20.9 | 813 | 2.45 | 0.90 | 26.9 | 1275 | 2.70 | 0.65 | 19.4 |
| 363 | 2.55 | 0.80 | 23.9 | 816 | 2.30 | 1.05 | 31.3 | 1278 | 2.75 | 0.60 | 17.9 |
| 366 | 2.50 | 0.85 | 25.4 | 819 | 2.20 | 1.15 | 34.3 | 1281 | 2.90 | 0.45 | 13.4 |
| 369 | 2.60 | 0.75 | 22.4 | 831 | 1.85 | 1.50 | 44.8 | 1284 | 2.90 | 0.45 | 13.4 |
| 372 | 2.45 | 0.90 | 26.9 | 834 | 2.25 | 1.10 | 32.8 | 1287 | 2.90 | 0.45 | 13.4 |
| 375 | 2.45 | 0.90 | 26.9 | 837 | 2.10 | 1.25 | 37.3 | 1290 | 2.90 | 0.45 | 13.4 |
| 378 | 2.40 | 0.95 | 28.4 | 840 | 2.05 | 1.30 | 38.8 | 1293 | 2.95 | 0.40 | 11.9 |
| 381 | 2.60 | 0.75 | 22.4 | 843 | 2.20 | 1.15 | 34.3 | 1296 | 2.90 | 0.45 | 13.4 |
| 384 | 2.60 | 0.75 | 22.4 | 846 | 2.30 | 1.05 | 31.3 | 1299 | 2.80 | 0.55 | 16.4 |
| 387 | 2.70 | 0.65 | 19.4 | 849 | 2.20 | 1.15 | 34.3 | 1302 | 3.00 | 0.35 | 10.4 |
| 390 | 2.70 | 0.65 | 19.4 | 852 | 2.30 | 1.05 | 31.3 | 1305 | 2.90 | 0.45 | 13.4 |
| 393 | 2.85 | 0.50 | 14.9 | 855 | 2.40 | 0.95 | 28.4 | 1308 | 3.05 | 0.30 | 9.0 |
| 396 | 2.65 | 0.70 | 20.9 | 858 | 2.30 | 1.05 | 31.3 | 1311 | 2.90 | 0.45 | 13.4 |
| 399 | 2.85 | 0.50 | 14.9 | 861 | 2.20 | 1.15 | 34.3 | 1314 | 2.90 | 0.45 | 13.4 |
| 402 | 2.60 | 0.75 | 22.4 | 864 | 2.30 | 1.05 | 31.3 | 1317 | 3.15 | 0.20 | 6.0 |
| 405 | 2.80 | 0.55 | 16.4 | 867 | 2.05 | 1.30 | 38.8 | 1320 | 3.00 | 0.35 | 10.4 |
| 408 | 2.80 | 0.55 | 16.4 | 870 | 2.45 | 0.90 | 26.9 | 1323 | 3.00 | 0.35 | 10.4 |
| 411 | 2.65 | 0.70 | 20.9 | 873 | 2.10 | 1.25 | 37.3 | 1326 | 3.10 | 0.25 | 7.5 |
| 414 | 2.55 | 0.80 | 23.9 | 876 | 2.45 | 0.90 | 26.9 | 1329 | 3.00 | 0.35 | 10.4 |
| 417 | 2.50 | 0.85 | 25.4 | 879 | 2.20 | 1.15 | 34.3 | 1332 | 3.00 | 0.35 | 10.4 |

LINGAN COLLIERY
ARCH SURVEY OF 6 WEST BOTTON
OCTOBER 16,1987
ORIGINAL ARCH HEIGHT IS 3.35 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 420 | 2.55 | 0.80 | 23.9 |
| 423 | 2.40 | 0.95 | 28.4 |
| 426 | 2.45 | 0.90 | 26.9 |
| 429 | 2.25 | 1.10 | 32.8 |
| 432 | 2.55 | 0.80 | 23.9 |
| 435 | 2.50 | 0.85 | 25.4 |
| 438 | 2.55 | 0.80 | 23.9 |
| 441 | 2.45 | 0.90 | 26.9 |
| 444 | 2.40 | 0.95 | 28.4 |
| 447 | 2.25 | 1.10 | 32.8 |
| 450 | 2.45 | 0.90 | 26.9 |

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 882 | 2.35 | 1.00 | 29.9 |
| 885 | 2.30 | 1.05 | 31.3 |
| 888 | 2.25 | 1.10 | 32.8 |
| 891 | 2.00 | 1.35 | 40.3 |
| 894 | 2.25 | 1.10 | 32.8 |
| 897 | 2.30 | 1.05 | 31.3 |
| 900 | 2.20 | 1.15 | 34.3 |
| 903 | 2.30 | 1.05 | 31.3 |
| 906 | 2.20 | 1.15 | 34.3 |
| 909 | 2.50 | 0.85 | 25.4 |
| 912 | 2.40 | 0.95 | 28.4 |

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 1335 | 3.00 | 0.35 | 10.4 |
| 1338 | 3.30 | 0.05 | 1.5 |
| 1341 | 3.00 | 0.35 | 10.4 |
| 1344 | 3.00 | 0.35 | 10.4 |
| 1347 | 3.30 | 0.05 | 1.5 |
| 1350 | 3.30 | 0.05 | 1.5 |
| 1353 | 3.30 | 0.05 | 1.5 |
| 1356 | 3.30 | 0.05 | 1.5 |
| 1359 | 3.30 | 0.05 | 1.5 |

# APPENDIX B

## 6 West Top Level

LINGAN COLLIERY
ARCH SURVEY OF 6 WEST TOP LEVEL
SEPTEMBER 30,1987
ORIGINAL ARCH HEIGHT IS 3.35 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 2.45 | 0.90 | 26.9 | 453 | 2.40 | 0.95 | 28.4 | 906 | 2.90 | 0.45 | 13.4 |
| 3 | 2.60 | 0.75 | 22.4 | 456 | 2.75 | 0.60 | 17.9 | 909 | 2.90 | 0.45 | 13.4 |
| 6 | 2.95 | 0.40 | 11.9 | 459 | 2.60 | 0.75 | 22.4 | 912 | 2.90 | 0.45 | 13.4 |
| 9 | 2.85 | 0.50 | 14.9 | 462 | 2.65 | 0.70 | 20.9 | 915 | 2.85 | 0.50 | 14.9 |
| 12 | 2.85 | 0.50 | 14.9 | 465 | 2.70 | 0.65 | 19.4 | 918 | 2.75 | 0.60 | 17.9 |
| 15 | 2.70 | 0.65 | 19.4 | 468 | 2.85 | 0.50 | 14.9 | 921 | 2.70 | 0.65 | 19.4 |
| 18 | 2.80 | 0.55 | 16.4 | 471 | 2.70 | 0.65 | 19.4 | 924 | 2.65 | 0.70 | 20.9 |
| 21 | 2.80 | 0.55 | 16.4 | 474 | 2.60 | 0.75 | 22.4 | 927 | 2.70 | 0.65 | 19.4 |
| 24 | 2.80 | 0.55 | 16.4 | 477 | 2.80 | 0.55 | 16.4 | 930 | 2.80 | 0.55 | 16.4 |
| 27 | 2.70 | 0.65 | 19.4 | 480 | 2.80 | 0.55 | 16.4 | 933 | 2.75 | 0.60 | 17.9 |
| 30 | 2.90 | 0.45 | 13.4 | 483 | 2.95 | 0.40 | 11.9 | 936 | 2.60 | 0.75 | 22.4 |
| 33 | 2.70 | 0.65 | 19.4 | 486 | 2.70 | 0.65 | 19.4 | 939 | 2.85 | 0.50 | 14.9 |
| 36 | 3.00 | 0.35 | 10.4 | 489 | 2.65 | 0.70 | 20.9 | 942 | 2.70 | 0.65 | 19.4 |
| 39 | 2.60 | 0.75 | 22.4 | 492 | 2.50 | 0.85 | 25.4 | 945 | 2.75 | 0.60 | 17.9 |
| 42 | 2.85 | 0.50 | 14.9 | 495 | 2.50 | 0.85 | 25.4 | 948 | 2.70 | 0.65 | 19.4 |
| 45 | 2.80 | 0.55 | 16.4 | 498 | 2.50 | 0.85 | 25.4 | 951 | 2.75 | 0.60 | 17.9 |
| 48 | 2.85 | 0.50 | 14.9 | 501 | 2.55 | 0.80 | 23.9 | 954 | 2.75 | 0.60 | 17.9 |
| 51 | 3.00 | 0.35 | 10.4 | 504 | 2.35 | 1.00 | 29.9 | 957 | 2.50 | 0.85 | 25.4 |
| 54 | 2.90 | 0.45 | 13.4 | 507 | 2.45 | 0.90 | 26.9 | 960 | 2.80 | 0.55 | 16.4 |
| 57 | 2.90 | 0.45 | 13.4 | 510 | 2.60 | 0.75 | 22.4 | 963 | 2.70 | 0.65 | 19.4 |
| 60 | 2.70 | 0.65 | 19.4 | 513 | 2.50 | 0.85 | 25.4 | 966 | 2.55 | 0.80 | 23.9 |
| 63 | 2.60 | 0.75 | 22.4 | 516 | 2.65 | 0.70 | 20.9 | 969 | 2.60 | 0.75 | 22.4 |
| 66 | 2.70 | 0.65 | 19.4 | 519 | 2.50 | 0.85 | 25.4 | 972 | 2.70 | 0.65 | 19.4 |
| 69 | 2.70 | 0.65 | 19.4 | 522 | 2.55 | 0.80 | 23.9 | 975 | 2.85 | 0.50 | 14.9 |
| 72 | 2.80 | 0.55 | 16.4 | 525 | 2.25 | 1.10 | 32.8 | 978 | 2.75 | 0.60 | 17.9 |
| 75 | 2.65 | 0.70 | 20.9 | 528 | 2.30 | 1.05 | 31.3 | 981 | 2.75 | 0.60 | 17.9 |
| 78 | 2.65 | 0.70 | 20.9 | 531 | 2.45 | 0.90 | 26.9 | 984 | 2.85 | 0.50 | 14.9 |
| 81 | 2.70 | 0.65 | 19.4 | 534 | 2.35 | 1.00 | 29.9 | 987 | 2.75 | 0.60 | 17.9 |

LINGAN COLLIERY
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ORIGINAL ARCH HEIGHT IS 3.35 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 84 | 2.70 | 0.65 | 19.4 | 537 | 2.30 | 1.05 | 31.3 | 990 | 2.90 | 0.45 | 13.4 |
| 87 | 2.80 | 0.55 | 16.4 | 540 | 2.35 | 1.00 | 29.9 | 993 | 2.80 | 0.55 | 16.4 |
| 90 | 2.80 | 0.55 | 16.4 | 543 | 2.30 | 1.05 | 31.3 | 996 | 2.90 | 0.45 | 13.4 |
| 93 | 2.70 | 0.65 | 19.4 | 546 | 2.45 | 0.90 | 26.9 | 999 | 2.75 | 0.60 | 17.9 |
| 96 | 2.55 | 0.80 | 23.9 | 549 | 2.35 | 1.00 | 29.9 | 1002 | 2.80 | 0.55 | 16.4 |
| 99 | 2.75 | 0.60 | 17.9 | 552 | 2.35 | 1.00 | 29.9 | 1005 | 3.00 | 0.35 | 10.4 |
| 102 | 2.60 | 0.75 | 22.4 | 555 | 2.40 | 0.95 | 28.4 | 1008 | 2.90 | 0.45 | 13.4 |
| 105 | 2.80 | 0.55 | 16.4 | 558 | 2.50 | 0.85 | 25.4 | 1011 | 2.80 | 0.55 | 16.4 |
| 108 | 2.80 | 0.55 | 16.4 | 561 | 2.60 | 0.75 | 22.4 | 1014 | 2.75 | 0.60 | 17.9 |
| 111 | 2.70 | 0.65 | 19.4 | 564 | 2.65 | 0.70 | 20.9 | 1017 | 2.75 | 0.60 | 17.9 |
| 114 | 2.65 | 0.70 | 20.9 | 567 | 2.65 | 0.70 | 20.9 | 1020 | 2.75 | 0.60 | 17.9 |
| 117 | 2.70 | 0.65 | 19.4 | 570 | 2.50 | 0.85 | 25.4 | 1023 | 2.70 | 0.65 | 19.4 |
| 120 | 2.75 | 0.60 | 17.9 | 573 | 2.70 | 0.65 | 19.4 | 1026 | 2.75 | 0.60 | 17.9 |
| 123 | 2.80 | 0.55 | 16.4 | 576 | 2.75 | 0.60 | 17.9 | 1029 | 2.60 | 0.75 | 22.4 |
| 126 | 3.00 | 0.35 | 10.4 | 579 | 2.60 | 0.75 | 22.4 | 1032 | 2.65 | 0.70 | 20.9 |
| 129 | 2.75 | 0.60 | 17.9 | 582 | 2.65 | 0.70 | 20.9 | 1035 | 2.75 | 0.60 | 17.9 |
| 132 | 2.70 | 0.65 | 19.4 | 585 | 2.70 | 0.65 | 19.4 | 1038 | 2.70 | 0.65 | 19.4 |
| 135 | 2.60 | 0.75 | 22.4 | 588 | 2.90 | 0.45 | 13.4 | 1041 | 2.70 | 0.65 | 19.4 |
| 138 | 2.90 | 0.45 | 13.4 | 591 | 2.75 | 0.60 | 17.9 | 1044 | 2.70 | 0.65 | 19.4 |
| 141 | 2.80 | 0.55 | 16.4 | 594 | 2.75 | 0.60 | 17.9 | 1047 | 2.70 | 0.65 | 19.4 |
| 144 | 2.75 | 0.60 | 17.9 | 597 | 2.60 | 0.75 | 22.4 | 1050 | 2.85 | 0.50 | 14.9 |
| 147 | 2.85 | 0.50 | 14.9 | 600 | 2.65 | 0.70 | 20.9 | 1053 | 2.80 | 0.55 | 16.4 |
| 150 | 2.90 | 0.45 | 13.4 | 603 | 2.70 | 0.65 | 19.4 | 1056 | 2.75 | 0.60 | 17.9 |
| 153 | 2.80 | 0.55 | 16.4 | 606 | 2.65 | 0.70 | 20.9 | 1059 | 2.60 | 0.75 | 22.4 |
| 156 | 2.70 | 0.65 | 19.4 | 609 | 2.65 | 0.70 | 20.9 | 1062 | 2.70 | 0.65 | 19.4 |
| 159 | 2.90 | 0.45 | 13.4 | 612 | 2.65 | 0.70 | 20.9 | 1065 | 2.75 | 0.60 | 17.9 |
| 162 | 2.65 | 0.70 | 20.9 | 615 | 2.75 | 0.60 | 17.9 | 1068 | 2.70 | 0.65 | 19.4 |
| 165 | 2.55 | 0.80 | 23.9 | 618 | 2.75 | 0.60 | 17.9 | 1071 | 2.75 | 0.60 | 17.9 |

LINGAN COLLIERY
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| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 168 | 2.50 | 0.85 | 25.4 | 621 | 2.60 | 0.75 | 22.4 | 1074 | 2.70 | 0.65 | 19.4 |
| 171 | 2.65 | 0.70 | 20.9 | 624 | 2.80 | 0.55 | 16.4 | 1077 | 2.90 | 0.45 | 13.4 |
| 174 | 2.75 | 0.60 | 17.9 | 627 | 2.85 | 0.50 | 14.9 | 1080 | 2.90 | 0.45 | 13.4 |
| 177 | 2.75 | 0.60 | 17.9 | 630 | 2.65 | 0.70 | 20.9 | 1083 | 2.65 | 0.70 | 20.9 |
| 180 | 2.70 | 0.65 | 19.4 | 633 | 2.85 | 0.50 | 14.9 | 1086 | 2.70 | 0.65 | 19.4 |
| 183 | 2.70 | 0.65 | 19.4 | 636 | 2.70 | 0.65 | 19.4 | 1089 | 2.65 | 0.70 | 20.9 |
| 186 | 2.85 | 0.50 | 14.9 | 639 | 2.55 | 0.80 | 23.9 | 1092 | 2.75 | 0.60 | 17.9 |
| 189 | 3.00 | 0.35 | 10.4 | 642 | 2.55 | 0.80 | 23.9 | 1095 | 2.70 | 0.65 | 19.4 |
| 192 | 2.70 | 0.65 | 19.4 | 645 | 2.60 | 0.75 | 22.4 | 1098 | 2.65 | 0.70 | 20.9 |
| 195 | 2.85 | 0.50 | 14.9 | 648 | 2.40 | 0.95 | 28.4 | 1101 | 2.60 | 0.75 | 22.4 |
| 198 | 2.85 | 0.50 | 14.9 | 651 | 2.50 | 0.85 | 25.4 | 1104 | 2.60 | 0.75 | 22.4 |
| 201 | 2.85 | 0.50 | 14.9 | 654 | 2.25 | 1.10 | 32.8 | 1107 | 2.55 | 0.80 | 23.9 |
| 204 | 2.80 | 0.55 | 16.4 | 657 | 2.50 | 0.85 | 25.4 | 1110 | 2.70 | 0.65 | 19.4 |
| 207 | 2.80 | 0.55 | 16.4 | 660 | 2.45 | 0.90 | 26.9 | 1113 | 2.70 | 0.65 | 19.4 |
| 210 | 2.80 | 0.55 | 16.4 | 663 | 2.50 | 0.85 | 25.4 | 1116 | 2.85 | 0.50 | 14.9 |
| 213 | 2.65 | 0.70 | 20.9 | 666 | 2.55 | 0.80 | 23.9 | 1119 | 2.70 | 0.65 | 19.4 |
| 216 | 2.75 | 0.60 | 17.9 | 669 | 2.50 | 0.85 | 25.4 | 1122 | 2.65 | 0.70 | 20.9 |
| 219 | 2.85 | 0.50 | 14.9 | 672 | 2.40 | 0.95 | 28.4 | 1125 | 2.65 | 0.70 | 20.9 |
| 222 | 2.85 | 0.50 | 14.9 | 675 | 2.65 | 0.70 | 20.9 | 1128 | 2.75 | 0.60 | 17.9 |
| 225 | 2.70 | 0.65 | 19.4 | 678 | 2.55 | 0.80 | 23.9 | 1131 | 2.70 | 0.65 | 19.4 |
| 228 | 2.65 | 0.70 | 20.9 | 681 | 2.55 | 0.80 | 23.9 | 1134 | 2.75 | 0.60 | 17.9 |
| 231 | 2.75 | 0.60 | 17.9 | 684 | 2.50 | 0.85 | 25.4 | 1137 | 2.70 | 0.65 | 19.4 |
| 234 | 2.60 | 0.75 | 22.4 | 687 | 2.65 | 0.70 | 20.9 | 1140 | 2.80 | 0.55 | 16.4 |
| 237 | 2.60 | 0.75 | 22.4 | 690 | 2.60 | 0.75 | 22.4 | 1143 | 2.70 | 0.65 | 19.4 |
| 240 | 2.80 | 0.55 | 16.4 | 693 | 2.45 | 0.90 | 26.9 | 1146 | 2.80 | 0.55 | 16.4 |
| 243 | 2.75 | 0.60 | 17.9 | 696 | 2.50 | 0.85 | 25.4 | 1149 | 2.80 | 0.55 | 16.4 |
| 246 | 2.85 | 0.50 | 14.9 | 699 | 2.65 | 0.70 | 20.9 | 1152 | 3.00 | 0.35 | 10.4 |
| 249 | 2.80 | 0.55 | 16.4 | 702 | 2.50 | 0.85 | 25.4 | 1155 | 2.90 | 0.45 | 13.4 |

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| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 252 | 2.80 | 0.55 | 16.4 |
| 255 | 2.90 | 0.45 | 13.4 |
| 258 | 2.70 | 0.65 | 19.4 |
| 261 | 2.60 | 0.75 | 22.4 |
| 264 | 2.75 | 0.60 | 17.9 |
| 267 | 2.70 | 0.65 | 19.4 |
| 270 | 2.55 | 0.80 | 23.9 |
| 273 | 2.45 | 0.90 | 26.9 |
| 276 | 2.55 | 0.80 | 23.9 |
| 279 | 2.75 | 0.60 | 17.9 |
| 282 | 2.70 | 0.65 | 19.4 |
| 285 | 2.65 | 0.70 | 20.9 |
| 288 | 2.65 | 0.70 | 20.9 |
| 291 | 2.70 | 0.65 | 19.4 |
| 294 | 2.60 | 0.75 | 22.4 |
| 297 | 2.75 | 0.60 | 17.9 |
| 300 | 2.70 | 0.65 | 19.4 |
| 303 | 2.60 | 0.75 | 22.4 |
| 306 | 2.80 | 0.55 | 16.4 |
| 309 | 2.80 | 0.55 | 16.4 |
| 312 | 2.75 | 0.60 | 17.9 |
| 315 | 2.50 | 0.85 | 25.4 |
| 318 | 2.70 | 0.65 | 19.4 |
| 321 | 2.70 | 0.65 | 19.4 |
| 324 | 2.55 | 0.80 | 23.9 |
| 327 | 2.85 | 0.50 | 14.9 |
| 330 | 2.80 | 0.55 | 16.4 |
| 333 | 2.75 | 0.60 | 17.9 |
| 705 | 2.65 | 0.70 | 20.9 |
| 708 | 2.65 | 0.70 | 20.9 |
| 711 | 2.70 | 0.65 | 19.4 |
| 714 | 2.50 | 0.85 | 25.4 |
| 717 | 2.75 | 0.60 | 17.9 |
| 720 | 2.75 | 0.60 | 17.9 |
| 723 | 2.75 | 0.60 | 17.9 |
| 726 | 2.60 | 0.75 | 22.4 |
| 729 | 2.60 | 0.75 | 22.4 |
| 732 | 2.45 | 0.90 | 26.9 |
| 735 | 2.60 | 0.75 | 22.4 |
| 738 | 2.70 | 0.65 | 19.4 |
| 741 | 2.80 | 0.55 | 16.4 |
| 744 | 2.50 | 0.85 | 25.4 |
| 747 | 2.40 | 0.95 | 28.4 |
| 750 | 2.60 | 0.75 | 22.4 |
| 753 | 2.70 | 0.65 | 19.4 |
| 756 | 2.60 | 0.75 | 22.4 |
| 759 | 2.50 | 0.85 | 25.4 |
| 762 | 2.55 | 0.80 | 23.9 |
| 765 | 2.60 | 0.75 | 22.4 |
| 768 | 2.50 | 0.85 | 25.4 |
| 771 | 2.50 | 0.85 | 25.4 |
| 774 | 2.55 | 0.80 | 23.9 |
| 777 | 2.60 | 0.75 | 22.4 |
| 780 | 2.65 | 0.70 | 20.9 |
| 783 | 2.60 | 0.75 | 22.4 |
| 786 | 2.60 | 0.75 | 22.4 |
| 1158 | 2.90 | 0.45 | 13.4 |
| 1161 | 2.85 | 0.50 | 14.9 |
| 1164 | 2.80 | 0.55 | 16.4 |
| 1167 | 2.85 | 0.50 | 14.9 |
| 1170 | 2.95 | 0.40 | 11.9 |
| 1173 | 2.90 | 0.45 | 13.4 |
| 1176 | 2.95 | 0.40 | 11.9 |
| 1179 | 2.85 | 0.50 | 14.9 |
| 1182 | 2.80 | 0.55 | 16.4 |
| 1185 | 2.75 | 0.60 | 17.9 |
| 1188 | 2.90 | 0.45 | 13.4 |
| 1191 | 3.10 | 0.25 | 7.5 |
| 1194 | 2.90 | 0.45 | 13.4 |
| 1197 | 2.80 | 0.55 | 16.4 |
| 1200 | 2.75 | 0.60 | 17.9 |
| 1203 | 2.70 | 0.65 | 19.4 |
| 1206 | 2.80 | 0.55 | 16.4 |
| 1209 | 2.85 | 0.50 | 14.9 |
| 1212 | 2.70 | 0.65 | 19.4 |
| 1215 | 2.60 | 0.75 | 22.4 |
| 1218 | 2.65 | 0.70 | 20.9 |
| 1221 | 2.75 | 0.60 | 17.9 |
| 1224 | 2.90 | 0.45 | 13.4 |
| 1227 | 2.85 | 0.50 | 14.9 |
| 1230 | 3.00 | 0.35 | 10.4 |
| 1233 | 2.90 | 0.45 | 13.4 |
| 1236 | 2.90 | 0.45 | 13.4 |
| 1239 | 2.80 | 0.55 | 16.4 |

LINGAN COLLIERY
ARCH SURVEY OF 6 WEST TOP LEVEL
SEPTEMBER 30,1987
ORIGINAL ARCH HEIGHT IS 3.35 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 336 | 2.80 | 0.55 | 16.4 |
| 339 | 2.70 | 0.65 | 19.4 |
| 342 | 2.70 | 0.65 | 19.4 |
| 345 | 2.75 | 0.60 | 17.9 |
| 348 | 2.95 | 0.40 | 11.9 |
| 351 | 2.95 | 0.40 | 11.9 |
| 354 | 2.75 | 0.60 | 17.9 |
| 357 | 2.60 | 0.75 | 22.4 |
| 360 | 2.70 | 0.65 | 19.4 |
| 363 | 2.90 | 0.45 | 13.4 |
| 366 | 2.80 | 0.55 | 16.4 |
| 369 | 2.85 | 0.50 | 14.9 |
| 372 | 2.85 | 0.50 | 14.9 |
| 375 | 2.80 | 0.55 | 16.4 |
| 378 | 2.70 | 0.65 | 19.4 |
| 381 | 3.00 | 0.35 | 10.4 |
| 384 | 2.75 | 0.60 | 17.9 |
| 387 | 2.90 | 0.45 | 13.4 |
| 390 | 2.95 | 0.40 | 11.9 |
| 393 | 2.80 | 0.55 | 16.4 |
| 396 | 2.70 | 0.65 | 19.4 |
| 399 | 2.70 | 0.65 | 19.4 |
| 402 | 2.90 | 0.45 | 13.4 |
| 405 | 2.80 | 0.55 | 16.4 |
| 408 | 3.00 | 0.35 | 10.4 |
| 411 | 2.70 | 0.65 | 19.4 |
| 414 | 2.95 | 0.40 | 11.9 |
| 417 | 2.65 | 0.70 | 20.9 |

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 789 | 2.55 | 0.80 | 23.9 |
| 792 | 2.60 | 0.75 | 22.4 |
| 795 | 2.70 | 0.65 | 19.4 |
| 798 | 2.75 | 0.60 | 17.9 |
| 801 | 2.75 | 0.60 | 17.9 |
| 804 | 2.70 | 0.65 | 19.4 |
| 807 | 2.50 | 0.85 | 25.4 |
| 810 | 2.60 | 0.75 | 22.4 |
| 813 | 2.70 | 0.65 | 19.4 |
| 816 | 2.65 | 0.70 | 20.9 |
| 819 | 2.70 | 0.65 | 19.4 |
| 822 | 2.75 | 0.60 | 17.9 |
| 825 | 2.65 | 0.70 | 20.9 |
| 828 | 2.70 | 0.65 | 19.4 |
| 831 | 2.70 | 0.65 | 19.4 |
| 834 | 2.80 | 0.55 | 16.4 |
| 837 | 2.80 | 0.55 | 16.4 |
| 840 | 2.80 | 0.55 | 16.4 |
| 843 | 2.65 | 0.70 | 20.9 |
| 846 | 2.65 | 0.70 | 20.9 |
| 849 | 2.60 | 0.75 | 22.4 |
| 852 | 2.80 | 0.55 | 16.4 |
| 855 | 2.55 | 0.80 | 23.9 |
| 858 | 2.75 | 0.60 | 17.9 |
| 861 | 2.70 | 0.65 | 19.4 |
| 864 | 2.90 | 0.45 | 13.4 |
| 867 | 2.90 | 0.45 | 13.4 |
| 870 | 2.75 | 0.60 | 17.9 |

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 1242 | 2.75 | 0.60 | 17.9 |
| 1245 | 2.70 | 0.65 | 19.4 |
| 1248 | 2.60 | 0.75 | 22.4 |
| 1251 | 2.70 | 0.65 | 19.4 |
| 1254 | 2.80 | 0.55 | 16.4 |
| 1257 | 2.70 | 0.65 | 19.4 |
| 1260 | 2.75 | 0.60 | 17.9 |
| 1263 | 2.90 | 0.45 | 13.4 |
| 1266 | 2.65 | 0.70 | 20.9 |
| 1269 | 2.75 | 0.60 | 17.9 |
| 1272 | 2.70 | 0.65 | 19.4 |
| 1275 | 2.60 | 0.75 | 22.4 |
| 1278 | 2.65 | 0.70 | 20.9 |
| 1281 | 2.65 | 0.70 | 20.9 |
| 1284 | 2.65 | 0.70 | 20.9 |
| 1287 | 2.60 | 0.75 | 22.4 |
| 1290 | 2.80 | 0.55 | 16.4 |
| 1293 | 2.95 | 0.40 | 11.9 |
| 1296 | 2.85 | 0.50 | 14.9 |
| 1299 | 2.80 | 0.55 | 16.4 |
| 1302 | 2.95 | 0.40 | 11.9 |
| 1305 | 2.95 | 0.40 | 11.9 |
| 1308 | 2.85 | 0.50 | 14.9 |
| 1311 | 2.75 | 0.60 | 17.9 |
| 1314 | 2.90 | 0.45 | 13.4 |
| 1317 | 2.75 | 0.60 | 17.9 |
| 1320 | 2.80 | 0.55 | 16.4 |
| 1323 | 2.80 | 0.55 | 16.4 |

LINGAN COLLIERY
ARCH SURVEY OF 6 WEST TOP LEVEL
SEPTEMBER 30,1987
ORIGINAL ARCH HEIGHT IS 3.35 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 420 | 2.90 | 0.45 | 13.4 |
| 423 | 2.85 | 0.50 | 14.9 |
| 426 | 2.85 | 0.50 | 14.9 |
| 429 | 2.80 | 0.55 | 16.4 |
| 432 | 2.85 | 0.50 | 14.9 |
| 435 | 2.80 | 0.55 | 16.4 |
| 438 | 2.95 | 0.40 | 11.9 |
| 441 | 2.90 | 0.45 | 13.4 |
| 444 | 2.85 | 0.50 | 14.9 |
| 447 | 2.70 | 0.65 | 19.4 |
| 450 | 2.75 | 0.60 | 17.9 |

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 873 | 2.70 | 0.65 | 19.4 |
| 876 | 2.90 | 0.45 | 13.4 |
| 879 | 3.00 | 0.35 | 10.4 |
| 882 | 2.80 | 0.55 | 16.4 |
| 885 | 2.85 | 0.50 | 14.9 |
| 888 | 2.90 | 0.45 | 13.4 |
| 891 | 2.80 | 0.55 | 16.4 |
| 894 | 2.85 | 0.50 | 14.9 |
| 897 | 2.85 | 0.50 | 14.9 |
| 900 | 2.80 | 0.55 | 16.4 |
| 903 | 2.70 | 0.65 | 19.4 |

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 1326 | 2.80 | 0.55 | 16.4 |
| 1329 | 2.85 | 0.50 | 14.9 |
| 1332 | 3.12 | 0.23 | 6.9 |
| 1335 | 3.10 | 0.25 | 7.5 |
| 1338 | 3.35 | 0.00 | 0.0 |
| 1341 | 3.35 | 0.00 | 0.0 |
| 1344 | 3.35 | 0.00 | 0.0 |
| 1347 | 3.35 | 0.00 | 0.0 |
| 1350 | 3.35 | 0.00 | 0.0 |
| 1353 | 3.35 | 0.00 | 0.0 |
| 1356 | 3.35 | 0.00 | 0.0 |
| 1359 | 3.35 | 0.00 | 0.0 |

# APPENDIX C

## 7 West Top Level

LINGAN COLLIERY
ARCH SURVEY OF 7 WEST TOP
JUNE 15,1988
ORIGINAL ARCH HEIGHT IS 3.35 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 3.30 | 0.05 | 1.5 | 201 | 2.71 | 0.64 | 19.1 | 403 | 2.89 | 0.46 | 13.7 |
| 3 | 3.27 | 0.08 | 2.4 | 204 | 2.69 | 0.66 | 19.7 | 406 | 2.75 | 0.60 | 17.9 |
| 6 | 3.04 | 0.31 | 9.3 | 207 | 2.62 | 0.73 | 21.8 | 409 | 2.77 | 0.58 | 17.3 |
| 9 | 3.27 | 0.08 | 2.4 | 210 | 2.67 | 0.68 | 20.3 | 412 | 2.67 | 0.68 | 20.3 |
| 12 | 3.25 | 0.10 | 3.0 | 213 | 2.62 | 0.73 | 21.8 | 415 | 2.70 | 0.65 | 19.4 |
| 15 | 3.24 | 0.11 | 3.3 | 217 | 2.49 | 0.86 | 25.7 | 418 | 2.61 | 0.74 | 22.1 |
| 18 | 3.24 | 0.11 | 3.3 | 220 | 2.47 | 0.88 | 26.3 | 421 | 2.65 | 0.70 | 20.9 |
| 21 | 3.10 | 0.25 | 7.5 | 223 | 2.62 | 0.73 | 21.8 | 424 | 2.69 | 0.66 | 19.7 |
| 24 | 3.13 | 0.22 | 6.6 | 226 | 2.47 | 0.88 | 26.3 | 427 | 2.65 | 0.70 | 20.9 |
| 27 | 3.11 | 0.24 | 7.2 | 229 | 2.70 | 0.65 | 19.4 | 430 | 2.80 | 0.55 | 16.4 |
| 30 | 3.10 | 0.25 | 7.5 | 232 | 2.79 | 0.56 | 16.7 | 433 | 2.61 | 0.74 | 22.1 |
| 33 | 3.07 | 0.28 | 8.4 | 235 | 2.67 | 0.68 | 20.3 | 436 | 2.60 | 0.75 | 22.4 |
| 36 | 3.23 | 0.12 | 3.6 | 238 | 2.82 | 0.53 | 15.8 | 439 | 2.75 | 0.60 | 17.9 |
| 39 | 3.19 | 0.16 | 4.8 | 241 | 2.73 | 0.62 | 18.5 | 442 | 2.83 | 0.52 | 15.5 |
| 42 | 3.11 | 0.24 | 7.2 | 244 | 2.79 | 0.56 | 16.7 | 445 | 2.87 | 0.48 | 14.3 |
| 45 | 3.08 | 0.27 | 8.1 | 247 | 2.70 | 0.65 | 19.4 | 448 | 2.80 | 0.55 | 16.4 |
| 48 | 3.07 | 0.28 | 8.4 | 250 | 2.82 | 0.53 | 15.8 | 451 | 2.79 | 0.56 | 16.7 |
| 51 | 3.00 | 0.35 | 10.4 | 253 | 2.84 | 0.51 | 15.2 | 454 | 2.84 | 0.51 | 15.2 |
| 54 | 2.97 | 0.38 | 11.3 | 256 | 2.67 | 0.68 | 20.3 | 457 | 2.82 | 0.53 | 15.8 |
| 57 | 3.02 | 0.33 | 9.9 | 259 | 2.72 | 0.63 | 18.8 | 460 | 2.72 | 0.63 | 18.8 |
| 60 | 3.02 | 0.33 | 9.9 | 262 | 2.65 | 0.70 | 20.9 | 463 | 2.77 | 0.58 | 17.3 |
| 63 | 3.09 | 0.26 | 7.8 | 265 | 2.60 | 0.75 | 22.4 | 466 | 2.72 | 0.63 | 18.8 |
| 66 | 2.95 | 0.40 | 11.9 | 268 | 2.61 | 0.74 | 22.1 | 469 | 2.75 | 0.60 | 17.9 |
| 69 | 2.87 | 0.48 | 14.3 | 271 | 2.71 | 0.64 | 19.1 | 472 | 2.77 | 0.58 | 17.3 |
| 72 | 2.77 | 0.58 | 17.3 | 274 | 2.87 | 0.48 | 14.3 | 475 | 2.74 | 0.61 | 18.2 |
| 75 | 2.79 | 0.56 | 16.7 | 277 | 2.73 | 0.62 | 18.5 | 478 | 2.77 | 0.58 | 17.3 |
| 78 | 2.85 | 0.50 | 14.9 | 280 | 2.56 | 0.79 | 23.6 | 481 | 2.84 | 0.51 | 15.2 |
| 81 | 2.85 | 0.50 | 14.9 | 283 | 2.67 | 0.68 | 20.3 | 484 | 2.87 | 0.48 | 14.3 |

LINGAN COLLIERY
ARCH SURVEY OF 7 WEST TOP
JUNE 15,1988
ORIGINAL ARCH HEIGHT IS 3.35 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) | ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 84 | 3.01 | 0.34 | 10.1 | 286 | 2.73 | 0.62 | 18.5 | 487 | 2.84 | 0.51 | 15.2 |
| 87 | 2.77 | 0.58 | 17.3 | 289 | 2.75 | 0.60 | 17.9 | 490 | 2.92 | 0.43 | 12.8 |
| 90 | 2.67 | 0.68 | 20.3 | 292 | 2.79 | 0.56 | 16.7 | 493 | 2.87 | 0.48 | 14.3 |
| 93 | 2.77 | 0.58 | 17.3 | 295 | 2.89 | 0.46 | 13.7 | 496 | 2.77 | 0.58 | 17.3 |
| 96 | 2.45 | 0.90 | 26.9 | 298 | 2.89 | 0.46 | 13.7 | 499 | 2.77 | 0.58 | 17.3 |
| 99 | 2.47 | 0.88 | 26.3 | 301 | 2.85 | 0.50 | 14.9 | 502 | 2.72 | 0.63 | 18.8 |
| 102 | 2.35 | 1.00 | 29.9 | 304 | 2.77 | 0.58 | 17.3 | 505 | 2.84 | 0.51 | 15.2 |
| 105 | 2.35 | 1.00 | 29.9 | 307 | 2.92 | 0.43 | 12.8 | 508 | 2.77 | 0.58 | 17.3 |
| 108 | 2.29 | 1.06 | 31.6 | 310 | 2.87 | 0.48 | 14.3 | 511 | 2.72 | 0.63 | 18.8 |
| 111 | 2.19 | 1.16 | 34.6 | 313 | 2.92 | 0.43 | 12.8 | 514 | 2.79 | 0.56 | 16.7 |
| 114 | 2.63 | 0.72 | 21.5 | 316 | 2.62 | 0.73 | 21.8 | 517 | 2.71 | 0.64 | 19.1 |
| 117 | 2.67 | 0.68 | 20.3 | 319 | 2.71 | 0.64 | 19.1 | 520 | 2.73 | 0.62 | 18.5 |
| 120 | 2.57 | 0.78 | 23.3 | 322 | 2.71 | 0.64 | 19.1 | 523 | 2.74 | 0.61 | 18.2 |
| 123 | 2.64 | 0.71 | 21.2 | 325 | 2.67 | 0.68 | 20.3 | 526 | 2.65 | 0.70 | 20.9 |
| 126 | 2.81 | 0.54 | 16.1 | 328 | 2.77 | 0.58 | 17.3 | 529 | 2.69 | 0.66 | 19.7 |
| 129 | 2.70 | 0.65 | 19.4 | 331 | 2.67 | 0.68 | 20.3 | 532 | 2.73 | 0.62 | 18.5 |
| 132 | 2.91 | 0.44 | 13.1 | 334 | 2.67 | 0.68 | 20.3 | 535 | 2.64 | 0.71 | 21.2 |
| 135 | 2.94 | 0.41 | 12.2 | 337 | 2.67 | 0.68 | 20.3 | 538 | 2.77 | 0.58 | 17.3 |
| 138 | 2.92 | 0.43 | 12.8 | 340 | 2.64 | 0.71 | 21.2 | 541 | 2.75 | 0.60 | 17.9 |
| 141 | 2.71 | 0.64 | 19.1 | 343 | 2.67 | 0.68 | 20.3 | 544 | 2.70 | 0.65 | 19.4 |
| 144 | 2.90 | 0.45 | 13.4 | 346 | 2.72 | 0.63 | 18.8 | 547 | 2.67 | 0.68 | 20.3 |
| 147 | 3.01 | 0.34 | 10.1 | 347 | 2.67 | 0.68 | 20.3 | 550 | 2.80 | 0.55 | 16.4 |
| 150 | 2.87 | 0.48 | 14.3 | 352 | 2.71 | 0.64 | 19.1 | 553 | 2.97 | 0.38 | 11.3 |
| 153 | 2.74 | 0.61 | 18.2 | 355 | 2.74 | 0.61 | 18.2 | 556 | 2.82 | 0.53 | 15.8 |
| 156 | 2.64 | 0.71 | 21.2 | 358 | 2.72 | 0.63 | 18.8 | 559 | 2.92 | 0.43 | 12.8 |
| 159 | 2.75 | 0.60 | 17.9 | 361 | 2.74 | 0.61 | 18.2 | 562 | 2.97 | 0.38 | 11.3 |
| 162 | 2.74 | 0.61 | 18.2 | 364 | 2.69 | 0.66 | 19.7 | 565 | 2.87 | 0.48 | 14.3 |
| 165 | 2.67 | 0.68 | 20.3 | 367 | 2.71 | 0.64 | 19.1 | 568 | 2.87 | 0.48 | 14.3 |

LINGAN COLLIERY
ARCH SURVEY OF 7 WEST TOP
JUNE 15,1988
ORIGINAL ARCH HEIGHT IS 3.35 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 168 | 2.73 | 0.62 | 18.5 |
| 171 | 2.92 | 0.43 | 12.8 |
| 174 | 2.73 | 0.62 | 18.5 |
| 177 | 2.90 | 0.45 | 13.4 |
| 180 | 2.87 | 0.48 | 14.3 |
| 183 | 2.74 | 0.61 | 18.2 |
| 186 | 2.81 | 0.54 | 16.1 |
| 189 | 2.92 | 0.43 | 12.8 |
| 192 | 2.84 | 0.51 | 15.2 |
| 195 | 2.72 | 0.63 | 18.8 |
| 198 | 2.87 | 0.48 | 14.3 |

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 370 | 2.87 | 0.48 | 14.3 |
| 373 | 2.81 | 0.54 | 16.1 |
| 376 | 2.69 | 0.66 | 19.7 |
| 379 | 2.75 | 0.60 | 17.9 |
| 382 | 2.75 | 0.60 | 17.9 |
| 385 | 2.80 | 0.55 | 16.4 |
| 388 | 2.75 | 0.60 | 17.9 |
| 391 | 2.80 | 0.55 | 16.4 |
| 394 | 2.87 | 0.48 | 14.3 |
| 397 | 2.83 | 0.52 | 15.5 |
| 400 | 2.81 | 0.54 | 16.1 |

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 571 | 2.82 | 0.53 | 15.8 |
| 574 | 2.77 | 0.58 | 17.3 |
| 577 | 3.27 | 0.08 | 2.4 |
| 580 | 3.17 | 0.18 | 5.4 |
| 583 | 3.12 | 0.23 | 6.9 |
| 586 | 3.12 | 0.23 | 6.9 |
| 589 | 3.17 | 0.18 | 5.4 |
| 592 | 3.12 | 0.23 | 6.9 |
| 595 | 3.23 | 0.12 | 3.6 |
| 598 | 3.14 | 0.21 | 6.3 |
| 601 | 3.17 | 0.18 | 5.4 |

# APPENDIX D

## 7 West Bottom Level

LINGAN COLLIERY
ARCH SURVEY OF 7 WEST BOTTOM
APRIL 6,1988
ORIGINAL ARCH HEIGHT IS 3.66 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 0 | 2.79 | 0.87 | 23.8 |
| 4 | 2.80 | 0.86 | 23.5 |
| 6 | 2.98 | 0.68 | 18.6 |
| 9 | 2.88 | 0.78 | 21.3 |
| 12 | 3.04 | 0.62 | 16.9 |
| 15 | 3.05 | 0.61 | 16.7 |
| 18 | 3.13 | 0.53 | 14.5 |
| 21 | 3.00 | 0.66 | 18.0 |
| 24 | 2.86 | 0.80 | 21.9 |
| 27 | 2.70 | 0.96 | 26.2 |
| 30 | 2.95 | 0.71 | 19.4 |
| 33 | 3.00 | 0.66 | 18.0 |
| 36 | 3.01 | 0.65 | 17.8 |
| 39 | 2.95 | 0.71 | 19.4 |
| 42 | 2.78 | 0.88 | 24.0 |
| 45 | 2.94 | 0.72 | 19.7 |
| 48 | 2.97 | 0.69 | 18.9 |
| 51 | 3.23 | 0.43 | 11.7 |
| 54 | 3.10 | 0.56 | 15.3 |
| 57 | 3.15 | 0.51 | 13.9 |
| 60 | 3.10 | 0.56 | 15.3 |
| 63 | 3.22 | 0.44 | 12.0 |
| 66 | 3.04 | 0.62 | 16.9 |
| 69 | 2.97 | 0.69 | 18.9 |
| 72 | 3.00 | 0.66 | 18.0 |
| 75 | 2.90 | 0.76 | 20.8 |
| 78 | 2.54 | 1.12 | 30.6 |
| 81 | 2.49 | 1.17 | 32.0 |
| 84 | 2.63 | 1.03 | 28.1 |
| 168 | 2.30 | 1.36 | 37.2 |
| 171 | 2.22 | 1.44 | 39.3 |
| 174 | 2.50 | 1.16 | 31.7 |
| 177 | 2.48 | 1.18 | 32.2 |
| 180 | 2.57 | 1.09 | 29.8 |
| 183 | 2.50 | 1.16 | 31.7 |
| 186 | 2.37 | 1.29 | 35.2 |
| 189 | 2.20 | 1.46 | 39.9 |
| 192 | 2.34 | 1.32 | 36.1 |
| 195 | 2.28 | 1.38 | 37.7 |
| 198 | 2.51 | 1.15 | 31.4 |
| 201 | 2.43 | 1.23 | 33.6 |
| 204 | 2.28 | 1.38 | 37.7 |
| 207 | 2.56 | 1.10 | 30.1 |
| 210 | 2.48 | 1.18 | 32.2 |
| 213 | 2.34 | 1.32 | 36.1 |
| 216 | 2.54 | 1.12 | 30.6 |
| 219 | 2.43 | 1.23 | 33.6 |
| 222 | 2.50 | 1.16 | 31.7 |
| 225 | 2.50 | 1.16 | 31.7 |
| 228 | 2.53 | 1.13 | 30.9 |
| 231 | 2.64 | 1.02 | 27.9 |
| 234 | 2.63 | 1.03 | 28.1 |
| 237 | 2.48 | 1.18 | 32.2 |
| 240 | 2.63 | 1.03 | 28.1 |
| 243 | 2.62 | 1.04 | 28.4 |
| 246 | 2.64 | 1.02 | 27.9 |
| 248 | 2.63 | 1.03 | 28.1 |
| 252 | 2.64 | 1.02 | 27.9 |
| 336 | 3.20 | 0.46 | 12.6 |
| 339 | 3.12 | 0.54 | 14.8 |
| 342 | 3.25 | 0.41 | 11.2 |
| 345 | 3.05 | 0.61 | 16.7 |
| 348 | 3.05 | 0.61 | 16.7 |
| 351 | 2.95 | 0.71 | 19.4 |
| 354 | 3.00 | 0.66 | 18.0 |
| 357 | 2.80 | 0.86 | 23.5 |
| 360 | 2.99 | 0.67 | 18.3 |
| 363 | 2.88 | 0.78 | 21.3 |
| 366 | 3.27 | 0.39 | 10.7 |
| 369 | 3.10 | 0.56 | 15.3 |
| 372 | 3.12 | 0.54 | 14.8 |
| 375 | 3.03 | 0.63 | 17.2 |
| 378 | 3.18 | 0.48 | 13.1 |
| 381 | 3.10 | 0.56 | 15.3 |
| 384 | 3.24 | 0.42 | 11.5 |
| 387 | 3.30 | 0.36 | 9.8 |
| 390 | 3.43 | 0.23 | 6.3 |
| 393 | 3.07 | 0.59 | 16.1 |
| 396 | 3.24 | 0.42 | 11.5 |
| 399 | 3.20 | 0.46 | 12.6 |
| 402 | 3.20 | 0.46 | 12.6 |
| 405 | 3.20 | 0.46 | 12.6 |
| 408 | 2.15 | 1.51 | 41.3 |
| 411 | 2.95 | 0.71 | 19.4 |
| 414 | 2.34 | 1.32 | 36.1 |
| 417 | 3.05 | 0.61 | 16.7 |
| 420 | 3.24 | 0.42 | 11.5 |

LINGAN COLLIERY
ARCH SURVEY OF 7 WEST BOTTOM
APRIL 6,1988
ORIGINAL ARCH HEIGHT IS 3.66 METERS

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 87 | 2.45 | 1.21 | 33.1 |
| 90 | 2.53 | 1.13 | 30.9 |
| 93 | 2.44 | 1.22 | 33.3 |
| 96 | 2.39 | 1.27 | 34.7 |
| 99 | 2.35 | 1.31 | 35.8 |
| 102 | 2.40 | 1.26 | 34.4 |
| 105 | 2.46 | 1.20 | 32.8 |
| 108 | 2.53 | 1.13 | 30.9 |
| 111 | 2.62 | 1.04 | 28.4 |
| 114 | 2.63 | 1.03 | 28.1 |
| 117 | 2.52 | 1.14 | 31.1 |
| 120 | 2.90 | 0.76 | 20.8 |
| 123 | 2.56 | 1.10 | 30.1 |
| 126 | 2.86 | 0.80 | 21.9 |
| 129 | 2.35 | 1.31 | 35.8 |
| 132 | 2.21 | 1.45 | 39.6 |
| 135 | 2.32 | 1.34 | 36.6 |
| 138 | 2.12 | 1.54 | 42.1 |
| 141 | 2.14 | 1.52 | 41.5 |
| 144 | 2.46 | 1.20 | 32.8 |
| 147 | 2.22 | 1.44 | 39.3 |
| 150 | 2.41 | 1.25 | 34.2 |
| 153 | 2.40 | 1.26 | 34.4 |
| 156 | 2.31 | 1.35 | 36.9 |
| 159 | 2.01 | 1.65 | 45.1 |
| 162 | 2.34 | 1.32 | 36.1 |
| 165 | 2.22 | 1.44 | 39.3 |

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 255 | 2.68 | 0.98 | 26.8 |
| 258 | 2.83 | 0.83 | 22.7 |
| 261 | 2.80 | 0.86 | 23.5 |
| 264 | 3.05 | 0.61 | 16.7 |
| 267 | 2.84 | 0.82 | 22.4 |
| 270 | 2.80 | 0.86 | 23.5 |
| 273 | 2.70 | 0.96 | 26.2 |
| 276 | 2.85 | 0.81 | 22.1 |
| 279 | 2.93 | 0.73 | 19.9 |
| 282 | 2.85 | 0.81 | 22.1 |
| 285 | 2.70 | 0.96 | 26.2 |
| 288 | 2.90 | 0.76 | 20.8 |
| 291 | 2.62 | 1.04 | 28.4 |
| 294 | 2.85 | 0.81 | 22.1 |
| 297 | 2.94 | 0.72 | 19.7 |
| 300 | 3.07 | 0.59 | 16.1 |
| 303 | 3.05 | 0.61 | 16.7 |
| 306 | 3.14 | 0.52 | 14.2 |
| 309 | 3.14 | 0.52 | 14.2 |
| 312 | 3.14 | 0.52 | 14.2 |
| 315 | 2.82 | 0.84 | 23.0 |
| 318 | 2.87 | 0.79 | 21.6 |
| 321 | 3.00 | 0.66 | 18.0 |
| 324 | 3.00 | 0.66 | 18.0 |
| 327 | 2.80 | 0.86 | 23.5 |
| 330 | 2.90 | 0.76 | 20.8 |
| 333 | 3.00 | 0.66 | 18.0 |

| ARCH NUMBER | ARCH HEIGHT (M) | REDUCTION (M) | REDUCTION (%) |
|---|---|---|---|
| 423 | 3.27 | 0.39 | 10.7 |
| 426 | 3.05 | 0.61 | 16.7 |
| 429 | 3.47 | 0.19 | 5.2 |
| 432 | 3.30 | 0.36 | 9.8 |
| 435 | 3.35 | 0.31 | 8.5 |
| 438 | 3.50 | 0.16 | 4.4 |
| 441 | 3.40 | 0.26 | 7.1 |
| 444 | 3.22 | 0.44 | 12.0 |
| 447 | 3.10 | 0.56 | 15.3 |
| 450 | 3.10 | 0.56 | 15.3 |
| 453 | 3.00 | 0.66 | 18.0 |
| 456 | 3.10 | 0.56 | 15.3 |
| 459 | 2.95 | 0.71 | 19.4 |
| 462 | 3.13 | 0.53 | 14.5 |
| 465 | 3.00 | 0.66 | 18.0 |
| 468 | 3.20 | 0.46 | 12.6 |
| 471 | 3.15 | 0.51 | 13.9 |
| 474 | 3.37 | 0.29 | 7.9 |
| 477 | 3.30 | 0.36 | 9.8 |
| 480 | 3.60 | 0.06 | 1.6 |
| 483 | 3.20 | 0.46 | 12.6 |
| 486 | 3.60 | 0.06 | 1.6 |
| 489 | 3.66 | 0.00 | 0.0 |
| 492 | 3.66 | 0.00 | 0.0 |
| 495 | 3.66 | 0.00 | 0.0 |
| 498 | 3.66 | 0.00 | 0.0 |
| 501 | 3.66 | 0.00 | 0.0 |